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The Boston Medical and Surgical Journal

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May 9, 1918

Original Articles.

MENINGOCOCCUS CARRIERS: PRELIMINARY REPORT FROM FIRST NAVAL DISTRICT.

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THE detection, isolation and treatment of meningococcus carriers, both in army and navy units, continues to be a problem, in spite of the extensive work already done. Hence it seems quite worth while to present additional data, especially since it comes from a district previously unreported. Moreover, the relation of carriers to contacts and non-contacts, the influence of hygienic conditions and occupation, as well as the matter of temporary and permanent carriers, etc., seems to be worthy of consideration. Therefore, besides the contact groups there are included six control groups of non-contacts.

Before giving the results of the work, a brief outline of the methods employed will be enumerated.

Media. Fresh plates are made from 1.5% beef infusion agar, to which is added 1.0% dextrose and a small amount of fresh-laked defibrinated sheep's blood.

Swabs and Swabbing. At first, curved wooden throat sticks were used, but these have been replaced by West tubes containing wire swabs. Formerly the posterior pharyngeal wall was swabbed, then the plate smeared with the convex surface of the cotton. Later, the tip of the wooden throat stick was thrust up toward the roof of the naso-pharynx, and then the cotton tip alone was touched to the plate. However, in swabbing the contacts reported here the West tube was used because it slipped into the naso-pharynx more readily, it caused less gagging and discomfort, but more especially because it gave a better direction to the wire swab as the latter was pushed toward the roof of the naso-pharynx. The swab is not drawn into the tube again; first, because it is not necessary since there is little danger of contaminating the tip, if the tube is properly withdrawn; and, second, because drawing the swab into the tube scrapes whatever secretions that may be on the sides of the cotton onto the tip. After the tip of the swab has touched the region of the roof of the naso-pharynx, the tube is withdrawn quickly, the tip is touched to the culture media, and the deposit carefully distributed over the whole surface by means of a platinum wire.

Care of Cultures. The cultures thus taken and planted immediately are transported to the

laboratory in an insulated wooden box which is heated by a copper tank containing hot water, and has a capacity of 100 plates. This outfit was designed by Assistant Surgeon Keegan, U.S.N.R.F., of the Naval Hospital, Chelsea. Usually cultures are in the incubator within an hour of the time when taken.

Examination of Plates. A preliminary examination of plates is made at the end of 18 to 24 hours' incubation, and at this time all plates containing no suspicious colonies are discarded. Experience here has shown that about half the number of plates taken on a group of men in close contact with a known case of meningitis can be put aside as negative. It has also indicated that more than this number can be excluded in like manner when plates from groups of non-contacts are examined. This, of course, has no reference to groups already isolated as carriers. From the remaining plates suspicious colonies are then treated as follows:

FIG. 1.—*A*, Crescents made with a wax pencil. These prevent serum from spreading and from running down the slide when the latter is held up for a better view of agglutinations; *B*, Material from a single suspected colony; *C1*, a drop of 1/10 dilution, Normal Horse Serum; *C2*, a drop of 1/50 dilution Polyvalent Anti-meningitis Serum; *C3*, a drop of 1/10 dilution Polyvalent Anti-meningitis serum.

Preliminary Agglutination Tests. For carrying out these tests on a slide, the latter is prepared with a wax pencil, as indicated in Fig. 1. After the culture material and sera are placed as in Fig. 1, a platinum wire is touched to the normal horse serum diluted 1/10 (c^1) and an emulsion is made with the serum thus obtained and the culture material above it. After a smooth emulsion is thus made, the remainder of serum c^1 is mixed with it, and the whole stirred from time to time. In like manner the immune sera c^2 and c^3 are mixed with the respective bits of culture material. Some suspicious colonies fail to rub-up into a smooth emulsion in the preliminary mixing of culture material, but break up immediately into coarse granules. Since meningococcus colonies never break up in this way, such colonies are considered negative.

For picking colonies, making sub-cultures, and for repeatedly stirring the three suspensions on the slide, a rod having a platinum needle and two platinum loops, as shown in Fig. 2, has proved convenient, because all three

FIG. 2.

wires can be flamed at once and no further sterilization is necessary until another colony is to be studied.

At the time a suspicious colony is picked a short streak is made with the needle on the same plate to give a sub-culture for future use.

The results of the macroscopic agglutination tests made as above indicated group themselves as follows:

	NORMAL HORSE SERUM 1/10	ANTI-MENINGITIS SERUM 1/10	ANTI-MENINGITIS SERUM 1/50
1.	+	+	—
2.	+	+	+
3.	—	+	+
4.	—	+	—

No. 1 is excluded as being negative.

No. 2 is examined as follows: A second colony similar to the first is further studied in exactly the same way, except that a fourth suspension is introduced, namely, a salt solution control without serum. Usually this excludes the colony as being agglutinable in salt solution. However, under these circumstances a colony may not agglutinate in salt solution, so higher dilutions of normal horse serum are introduced until it is shown that the organism is either agglutinating in horse serum as such, or only up to a certain point, and then specifically in anti-meningococcus serum. Fortunately, this last type is not common.

Nos. 3 and 4 constitute presumptive positives.

When an organism agglutinates, as in Nos. 3 or 4, or specifically in No. 2, smears are made from the 1/10 anti-meningococcus serum agglutinated suspensions, and later the Gram stain is applied. Such smears show the agglutination microscopically, the character of the organisms morphologically and their staining quality.

These studies show that there is a marked difference in the rapidity of the agglutination reaction both in control cultures and in "unknowns." At times slight warming hastens the process.

I have stated that about half of the original plates taken on contacts show no suspicious

colonies, hence can be excluded from further consideration. In addition to this, about half of the remaining plates can be excluded by failure of colonies to agglutinate specifically in a high titre polyvalent anti-meningococcus serum. Hence, within about 24 hours of the swabbing time, approximately 70% of the contact suspects can be released from temporary quarantine. All plates are then returned to the incubator for a second 24-hour period. This has proved to be essential in order to rule out as far as possible the chromogenic Groups I, II, and III. This process usually eliminates 5 or 6% more of the original group.

Gross Agglutinations in Tubes. From the sub-cultures made at the end of the first 24-hour period, transplants are made for gross agglutination in tubes at 55° C. for 12 hours, and then in the ice box for 12 hours. Experience has shown that results from this method follow so closely the slide method that they rarely change the positive report made on the basis of the latter.

Briefly, then, all plates which show no suspicious colonies are discarded. All those having suspicious colonies which do not rub-up into a smooth emulsion in the sera but, from the start, form a granular suspension, are eliminated. All colonies which move *en masse* across the media when touched with the needle, and those showing marked chromogenesis, are excluded. And, finally, all colonies which agglutinate in salt solution, or non-specifically in normal horse serum, are discarded, or set aside for further study. Then there is left a definite group of colonies which agglutinate specifically in anti-meningococcus serum. Such are reported as positive.

The basis of judgment as to chromogenesis, general appearance of colonies, etc., lies in a careful study of stock strains of meningococci, para meningococci, and intermediates Nos. 6, 10, 30, 32, 62, 63, and 81, transplanted to the media used for isolation, together with a number of strains recently isolated from cases of cerebrospinal fever. Some of the stock strains tend to show a yellow tinge after 48 hours' growth, but not so marked as in the chromogenic group.

Control transplants of known meningococcus cultures are made on each batch of plates used and incubated during the same time as the unknown cultures in order to give fresh cultures for testing out the sera to be used, and to give a fair idea of the appearance of colonies on the particular batch of media used.

With the above method over 3000 plates have been examined during a period of about seven weeks. From this number over 300 positive cultures from different throats have been studied. Of this group of positives, 40% agglutinated specifically on the slide in 1/10 anti-meningococcus serum alone, and about 60% as high as the 1/50 dilution.

Gross agglutinations in tubes done on a hundred of the above group showed results indicated by Table I. The same lot of sera used for agglutinations on slides was used in this series.

TABLE I.

Number of Cultures	Number of Cultures Agglutinated in Salt Sol. Control	Number of Cultures Agglutinated in the Dilutions of Anti-meningococcus Serum Indicated						Number of Cultures Agglutinated in Normal Horse Serum 1/50 Control
		1/50	1/100	1/200	1/400	1/800	1/1600	
100	0	1	20	25	32	16	6	0

The agglutination titre of the anti-meningococcus serum used in the above gross agglutinations was checked up by the use of stock strains of meningococci, Nos. 6, 30, 63, 10, 32, 62, 81. Frequently the above agglutinations were confirmed by second and third cultures from the same carrier.

In comparing agglutinations in the 1/10 and 1/50 anti-meningococcus serum on the slide with the gross agglutinations in tubes, it appears that colonies agglutinating in the 1/50 anti-meningococcus serum on the slide, agglutinate in higher dilutions in the tubes than do the 1/10 anti-meningococcus serum agglutinators. However, this is not always the case.

Now turning to the carriers themselves, some interesting facts have come to light from frequent and repeated examinations. For convenience, only the first hundred carriers isolated will be considered. Table II shows the number and percentage of positive cultures found from such a group on repeated examinations at five-day intervals.

TABLE II.

No. of Carriers	No. and Percentage of Positives on Repeated Examinations				
	2nd exam.	3rd exam.	4th exam.	5th exam.	6th exam.
100	57	59	55	52	34

One will see at a glance that the above figures do not refer directly to successive cultures on any one carrier.

For the purpose of illustrating how the persistence of successive positive cultures may occur in a group of carriers, Table III is introduced.

TABLE III.

No. of Carriers	No. and Percentage of Carriers Having Successive Positive Cultures at 5-Day Intervals				
	2 positives	3 positives	4 positives	5 positives	6 positives
100	57	45	28	22	13

One would expect from the above figures about half the isolated carriers might be released from quarantine at the end of the required 21 days minimal period. However, as a matter of fact, only 16 were ready for discharge within that time. The reason for this will be demonstrated by Table IV, which exemplifies the so-called "intermittent carrier" condition. In order to make the situation clearer, the examples are taken at random, from the isolated group, rather than from only the first hundred.

TABLE IV.

RECORD OF THE POSITIVE AND NEGATIVE CULTURES FOUND ON CARRIERS CULTURED AT 5-DAY INTERVALS.

Patient's No.	Examination										
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th
7	+	+	+	+	+	+	+	+	+	—	—
9	+	+	+	—	—	—	+	—	—	—	—
12	+	—	—	—	+	+	—	+	—	—	—
27	+	—	—	+	—	—	—	—			
37	+	+	+	—	+	—	+	+	—	—	+
60	+	—	+	+	—	+	—	—	—	—	
61	+	—	—	—	—						

No. 7 represents a group of four permanent carriers. No. 61 represents a group of sixteen or more who showed no positive cultures after isolation. Nos. 9 and 12 represent a group of six from whom a positive culture was obtained after three successive negatives. Nos. 37 and 60 represent a group of forty-nine who showed positive cultures after one or more negatives. Experience here, as elsewhere, would indicate that meningococcus carriers may be classified as permanent or persistent, intermittent, and temporary. It may be that the temporary group is only a phase of the intermittent group. Furthermore, it is possible that the intermittent group represents men who have become reinfected from other carriers, rather than men who are in fact carriers, but whose cultures fail to show up positive on some examinations. In this connection it seems quite worth while to note the fact that at one time a carrier may show a pure culture on one examination and on the next show only one or two colonies along with numerous other organisms, then on a third or fourth examination a second pure culture of meningococci.

Treatment. Various measures have been tried to clear up the carriers. These include a variety of sprays and also steaming. But results do not seem to indicate consistent, if any, success. Out of about half of the isolated carriers who received no treatment, a much larger number has been discharged than is true of those treated. Moreover, out of a group of twenty who had shown four successive positive cultures, ten were treated during a ten-day period, and ten were untreated. An equal number from each group showed negatives after two cultures taken during that period. Treatment was suspended for 24 hours before each culture was taken.

It is interesting to note that during the past two weeks of warm weather a sharp decline in the number of positive cultures from the carriers in quarantine has taken place.

Discussion. I certainly do not believe the method of slide agglutination, supplemented by gross agglutination in tubes, is infallible, since I have found some definite chromogenic organisms which agglutinate as high as 1/200 in anti-meningococcus serum and not in either 1/50 normal horse serum or physiological salt solution. But it seems to me if one familiarizes himself with the cultural characteristics of a number of strains of meningococci and uses discretion in picking suspicious colonies, and in making up a preliminary suspension on the slide before allowing the agglutination to take place; if, furthermore, one allows for a second reading of plates, at the end of a 48-hour incubation period, to rule out markedly chromogenic organisms, that this method should be sufficient to isolate carriers. All the 100 strains mentioned in the above tables were cultured and sub-cultured over two to three weeks, and none showed growth at room temperature on the media used for isolation. Many were transferred to plain agar, where they grew poorly or not at all, even at 37° C. If, in addition then, one puts proper emphasis on the microscopic appearance of the smears and on the lack of growth of the organism at room temperature on proper media, just so much more evidence is added to strengthen this belief.

Epidemiology. We now come to the consideration of groups of contacts and non-contacts in their relation to the number and percentage

of positive meningococcus carriers. Table V presents an outline of the facts. This is followed by a discussion of each one of the groups.

TABLE V. (PART ONE).

Date	Group	Place	No. of Cultures	No. of Carriers	Per Cent.	Remarks
Jan. 28	1	Training ship	45	4	8—%	Not close contacts
Feb. 1-5	2	A cruiser	8	2	29%	Close contacts
	3	Receiving ship. A pier	135	12	8—%	Not close contacts
Feb. 5-11	4	Receiving ship. A pier	176	41	22—%	Close contacts
Feb. 7	5	A hospital. One case isolated in room, others on open ward. Nurses, doctors and lab. workers.	32	2	6—%	No special contacts except doctors and nurses in immediate attendance
Feb. 19-21	6	A collier	157	28	17—%	Moderately close contacts
Feb. 23-24	7	A cruiser	376	31	21%	Whole ship taken because of second case
Feb. 26	8	A cruiser	37	13	35—%	Well chosen contacts
Feb. 27	9	Guard on oiler	8	1	12—%	Close contacts under ideal hygienic conditions
Mar. 7	10	Receiving ship. A pier	20	5	25%	Close contacts
Mar. 20	11	Gov't school contacts	75	9	11—%	Company from which a case was taken
Mar. 21	12	Battleship	50	8	16—%	Moderately well chosen
Mar. 27	13	Receiving ship. A pier	72	17	20%	Close contacts

TABLE V. (PART TWO).

NON-CONTACTS. THE FOLLOWING GROUPS WERE TAKEN AS CONTROLS.

Date	Group	Place	No. of Cultures	No. of Carriers	Per Cent.	Remarks
Mar. 4	A	Hingham control non-contacts	100	9	9%	Recruits living under good conditions
Mar. 9	B	A receiving ship, a pier. Non-contacts as far as known.	100	26	26%	Recruits living in crowded quarters
Mar. 13	C	Group of college women, non-contacts	100	1	1%	Students living at home or in small groups
Mar. 11	D	First- and second-year medical students	100	1	1%	Students living at home or in boarding places
Mar. 12	E	Group of infants	45	1	2%	Living in an ideal hospital
Mar. 28	F	Gov't school	79	8	9%	Recruits attending a government school, living in barracks, under good conditions.

A BRIEF EXPLANATION OF THE GROUPS RECORDED IN TABLE V.

Group 1. Represents part of a ship's crew. The patient was a carpenter detailed to work on the ship, but aside from working hours had nothing to do with the crew. He spent two or three nights a week at home and the other nights at two different stations. He took his meals at three or four places. For these reasons I do not consider this a "close contact" group, but only moderately close at best.

45 cultures—4 positive = 8%.

Group 2. Is made up of eight men who were intimately associated with the patient at mess, in sleeping quarters and at work. One of the carriers was the intimate friend of the patient, hence these are called "close contacts."

8 cultures—2 positives = 29%.

Group 3. Is really made up of two groups, one from a cooking school of which the patient was a member for a short time. The other group was taken at random from a large number of men who in all probability never associated with the patient. However, this patient gave positive meningococcus cultures from the naso-pharynx on repeated examination. The organisms agglutinated in polyvalent anti-meningitis serum beyond a 1/1600 dilution. It is interesting to note that the patient was sent to the hospital with a diagnosis of pneumonia and remained there six or seven days before signs indicative of cerebrospinal fever developed. In spite of the fact that the patient was shown to be a definite carrier, one would not consider this group as being any more than "moderately close" contacts.

135 cultures—12 positive = 8%.

Group 4. Consists of guards who were messmates of, and who occupied the same quarters with the patient. All lived under crowded

conditions. For these three reasons they are considered "close contacts."

175 cultures—41 positive = 22%.

Group 5. Is made up of patients in an open ward in a hospital, and of nurses, doctors and laboratory workers. Two of the doctors and two of the nurses were in charge of the case of meningitis spoken of in Group 3. The patient was in an isolation room off the open ward, so that there was no real contact between him and the one patient in the ward who proved to be a carrier, nor was there any known contact between him and the hospital apprentice, who was the second carrier found in the group. Here, then, is a group which might well represent conditions found in almost any well-conducted hospital, and concerning which one would scarcely apply the term "close contact," since isolation in regard to meals and sleeping quarters was excellent, and since general hygienic conditions were the best obtainable.

32 cultures—2 positive = 6%.

Group 6. Consists of the whole crew of a collier from which a case was taken, but the patient was an electrician, first class, hence did not come in close contact with more than a small group. Therefore I have considered this group as only "moderately close" contacts.

157 cultures—28 positive = 17%.

Group 7. Represents practically the whole crew of the ship from which Group 2 cultures were taken three weeks before. This wholesale culturing seemed justified because of the second case. It may be of interest to know that only 13 of the 81 carriers of this group were sent to quarantine, while the others were isolated on the boat from the rest of the crew as far as meals and quarters were concerned. The boat sailed a few days later and the carriers aboard were to be cultured again at the next port. None of the Group 2 men appeared as carriers in this group although all were cultured both times. I consider this a "close contact" group.

376 cultures—81 positive = 21%.

Group 8. Here is a group of 37 men chosen from over 1400 members of a ship's crew. They represent the men who were most intimately associated with the patient, either as messmates, hospital apprentices, or friends. In other words, this is the most carefully picked group of close contacts in the list.

37 cultures—13 positive = 35%.

Group 9. Represents a guard squad of an oiler, living under ideal hygienic conditions, separated from the ship's crew. However, since these men were messmates, occupied the same sleeping quarters and work together, they must be considered "close contacts," especially since the patient was known to have been sick for considerably over a week before he was sent to the hospital.

8 cultures—1 positive = 12%.

Group 10. Represents a well-chosen group of men in the same mess, living in the same quarters and doing the same work as the patient. Hence it must be considered a well-chosen group of "close contacts."

20 cultures—5 positive = 25%.

Group 11. Is a company of young men attending a government school. These men for the most part attend the same mess, sleep in the same quarters and pursue the same course of studies. Their physical work amounts to about one hour to an hour and a half drilling a day. Some additional facts in regard to the patient are of interest. It was discovered that the patient had been sleeping away from quarters about six nights a week for some time before he was taken sick, and that he took most of his meals at places other than the mess hall. Under these conditions it seems reasonable to call this group "moderately close" contacts at best. Living under good hygienic conditions and not exposed to physical hardship.

75 cultures—9 positive = 11%.

Group 12. Is a moderately well-chosen squad of men from a crew of 1400 on shipboard. Here hygienic conditions were good, though contact was close.

50 cultures—8 positive = 16%.

Group 13. Represents men in the same division and section as two patients. They were messmates, slept in the same quarters, and lived under conditions which would be considered crowded. One patient was a negro. Three out of four negroes in the same group gave positive cultures from the naso-pharynx. Two of these showed pure cultures of meningococcus. This is considered a "close contact" group.

72 cultures—17 positive = 20%.

Non-contact Groups. In order to gain some idea of the prevalence of carriers under varying conditions of housing, age and occupation, the groups shown in Table V (part 2) were taken.

Group A. Represents a non-selected group

of men living in barracks under good hygienic conditions, eating at the same mess, and doing fairly hard physical work, out of doors. The length of service is measured by weeks rather than months. No case of cerebrospinal fever has been found in this camp at any time.

100 cultures—9 positive = 9%.

Group B. Is made up of any hundred men from a number of thousand living in crowded quarters, and eating at a common mess, but doing various kinds of work. It was taken from the same place as the contact groups 3, 4, 10, and 13 recorded in Table I (part 1). After careful inquiry it was found that all but about three of the cases of cerebrospinal fever in this district occurred in men, either at this crowded station or recently transferred from it to ships or other places, so that this control group of supposedly non-contacts in reality represents conditions where possibility of contact with actual cases of cerebrospinal fever was greatest. Moreover, three groups of "contacts" previously taken from here showed from 20 to 25% carriers. One can readily see that with 20 to 25% carriers as "seeding" groups, and crowded quarters as opportunity for sowing, this receiving ship offers the best opportunity for the spread of meningococci. Little wonder, then, that ten out of thirteen of the cases in this district came directly or indirectly from this place.

100 cultures—26 positive = 26%.

Group C. Consists of college women between the ages of 18 and 22. Some live in dormitories, others at home. Some take their meals together, others at various places.

100 cultures—1 positive = 1%.

Group D. This is a group of first and second year medical students, not doing hospital work. They have no common living or eating quarters.

100 cultures—1 positive = 1%.

Group E. This is a group of infants, in a hospital, where hygienic conditions were excellent. One member of the group had cerebrospinal fever, but was well isolated from the others.

45 cultures—1 positive = 1%.

Group F. Is a company of men from the same place as Group 11, in the preceding chart. Conditions of living, the matter of age and occupation are the same. Hence this represents a real control "non-contact" group.

79 cultures—8 positive = 9%.

DISCUSSION.

One can readily see from the data given in connection with the above groups how impossible it is to draw fixed lines between "close" contact groups and groups of only "moderately" close contacts, and how worthless mere percentage would be if conditions of living and occupation, etc., were not considered. However, by looking at the groups critically, I believe certain points of interest are evident.

Considering the groups of "moderately close" contacts, 1, 3, 4, 5, 6, and 11, one finds that the one which came from the most crowded quarters shows the highest percentage, namely, 22%, and that the one that came from a collier, where hard work and exposure to extremes of heat and cold were important factors, showed 17%, as against 8 to 11% shown by Groups 1, 3, 5, 11, where the possibilities of contact were about the same, but where there was no crowding in quarters, no severe work, no particular exposure to extremes of heat and cold.

Let us now consider the groups of "close" contacts. We will first consider those groups taken from ships, namely, 2, 7, 8, 9, and 12. Group 9, which shows the lowest percentage, 11%, represents only eight men who were living under the best hygienic conditions, and whose work was guard duty. Group 12, which shows the next lowest percentage, namely 16%, was not carefully chosen, hence cannot be considered "close" contacts as far as the case is concerned. Groups 2, 7, 8, which show the highest percentage, *i.e.*, from 20 to 35%, represent almost similar conditions of living and work, the chief variable being closeness of contact with a known case. Here it will be seen that the group which was most carefully selected, Group 8, shows the highest percentage, namely, 35%. The remaining two groups of "close" contacts, Groups 10 and 13, also represent approximately the same conditions of work and living, and give 25 and 20%, respectively.

From the study of the non-contact groups, it is evident that 26 may represent the carrier percentage among large groups of recruits who live in crowded quarters. In contrast to this, 9% may represent the number of carriers among recruits who have not come in contact with a known case, and who are living under good hygienic conditions. This same percentage, 9%, may also fairly represent the carriers among recruits who are students, living in bar-

racks under good hygienic conditions. Leaving the military groups, it is quite evident that a much lower percentage, even as low as 1%, may represent the number of carriers among groups of students, both men and women, of about the same age as the recruits, but who live either at home, or in small groups.

Probably 1 to 2% represents the number of carriers among infants in a well-conducted infants' hospital.

QUARANTINE.

The carriers for this district are isolated at the Government Quarantine Station, Gallop's Island.

The men themselves have helped in the cooking, carpenter work, etc. More recently they have helped to repair the roads.

The Special Aid Society, through Mrs. Barrett Wendell, has supplied a phonograph and records, magazines, daily papers, and books. The Y. M. C. A. and others have contributed a piano, tobacco, etc.

Thus far no carrier has been discharged in less than the 21-day limit set by the Navy Department. No carrier has come down with the disease. No man in any of the groups cultured has come down with the disease. In other words, the cases have always been men not previously cultured.

SUMMARY.

Meningococcus carriers in this district have been isolated on the basis of agglutinations in 1/10 or 1/50 dilutions of polyvalent anti-meningococcus sera on slides, followed by gross agglutinations in tubes, the final readings being taken after twelve hours in the incubator at 55° C. and twelve hours in the ice box. This has been supplemented by a careful study of cultural characteristics.

Over three thousand cultures have been examined, of which about three hundred have been positive for meningococci. Of this group about 40% agglutinated specifically in 1/10 anti-meningococcus serum, and about 60% as high as the 1/50 dilution on the slide.

Experience has shown that results of gross agglutination in tubes rarely alters the positive findings obtained on slides.

Repeated examinations of a group of 100 carriers showed that only 16% were ready for discharge at the end of the minimal isolation period of 21 days; that 7% remained positive over forty days; that 6% showed positive cultures after three successive negatives; that 49% showed positive cultures after one or more negatives, thus demonstrating a persistent, and an intermittent type of carrier; that a carrier may show a pure culture of meningococci on one examination, on the next only a few scattered colonies in a mixed culture, and on the third a pure culture of meningococci.

Treatment has been of no value in our hands. A sharp decline in the number of positive cultures from the carrier group has been noted during the past two weeks of warm weather.

A study of 13 groups of so-called "contacts," and 6 groups of "non-contacts" brings out the following facts:

Under good hygienic conditions, groups of naval men in this district, if only moderately well selected on the basis of possible contact with a known case of cerebrospinal fever, show from 6 to 8% carriers. If hygienic conditions are poor, that is, if men are in crowded quarters, are subjected to severe physical labor under extremes of heat and cold, such groups may show from 17 to 22% carriers.

Among groups of naval man well selected on the basis of possible contact with a known case of cerebrospinal fever and living in close contact with each other either on shipboard or in crowded quarters, 20 to 35% appear to be carriers, the upper limit representing the most carefully chosen group. But when only a small group of guards, isolated from the rest of a crew, is considered, only 11% appear positive.

One group of 100 men taken at random from a camp where there had been no case of cerebrospinal fever, and where living conditions are excellent, showed 9% carriers as contrasted with 26% which appeared in a group of 100 taken from barracks where men were decidedly overcrowded and from which a number of cases had been taken, also, where 20 to 25% carriers had been found on previous examinations.

Another non-contact group of 79 men representing a naval student body living in barracks under good hygienic conditions, showed 9% as contrasted with the 1% found among 100 women students of Simmons College, and the 1% found among the first and second year Harvard medical students.

In these last three groups about all the factors were common, but the naval group ate at a common mess and lived in barracks, whereas

the others lived chiefly at home or in small groups.

Hence it is evident that the important factors which change the number of carriers from as low as 1 to 2% among civilians to as high as 20 to 35% among recruits are: contact with known cases of cerebrospinal fever; unhygienic conditions such as come from crowded barracks; severe physical labor, coupled with exposure to extremes of heat and cold; and, finally, contact with carriers of meningococci.

When this work was being organized, Surgeon Milton J. Rosenau, U.S.N.R.F., during a visit to four or five laboratories, received personal information which has been freely used in the meningococcus carrier work done here. Hence, through him I am indebted chiefly to Dr. P. K. Olitsky, of the Rockefeller Institute, for suggestions as to methods and media, but also to Dr. Anna W. Williams and Dr. Charles Krumwiede, Jr., of the Research Laboratory, New York City Department of Health; Dr. G. W. McCoy, Director of the Hygienic Laboratory, U. S. Public Health Service, Washington, D. C.; and Admiral E. R. Stitt, Director of the Naval Medical School, Washington, D. C.

Anti-meningococcus serum and stock meningococcus strains were furnished by Dr. R. Kohn, of the Antitoxin and Vaccine Laboratory, Massachusetts State Department of Health, and Dr. Olitsky, of the Rockefeller Institute.

The laboratory work was done at the Harvard Medical School, in the Department of Preventive Medicine and Hygiene, at Dr. Rosenau's invitation, since the new laboratories at the U. S. Naval Hospital, Chelsea, were not available at the time.

WITH THE R.A.M.C. IN FRANCE.

By M. A. Harrington, M.B., New York City.

Psychiatric Institute, Ward's Island.

For one year I served with the Royal Army Medical Corps, and my purpose in writing what follows is merely to tell something of the life of the medical officer with the British armies in France, as I found it. I pass from the preliminary stages,—the signing up at the War Office, the time spent in camps in England, the trip from England to Havre, and from Havre up to the line,—and proceed at once to tell of my first job in France, which was with a field ambulance.

A field ambulance is a sort of movable hospital, situated, as a rule, some distance back of the lines, but within reach of the enemy's long-range guns. I found the ambulance at which I was ordered to report, located in an orchard. It consisted of a collection of portable huts, tents and improvised structures of one kind or another, which overflowed from the orchard into an open field across the road. Narrow walks had been laid down, making it possible to get from one building or tent to another, but if a man had the misfortune while passing along one of these walks, to step off the edge, he at once sank into unplumbed depths of mud; that is, unless the weather happened to be quite cold and the ground frozen hard.

The officers' quarters consisted of two Nissen huts—contrivances named after their inventor, and supposed to be portable. One of these huts was used for sleeping quarters, and although the weather was at times very cold, it was not heated in any way. We should not have minded this so much if it had not been extremely damp. On returning at night we would find beads of moisture glistening on our blankets, except in cold weather, when they were replaced by crystals of frost. My pajamas were always wet and clammy when I put them on at night, and my shirt had gotten into the same condition by the time I came to put it on in the morning. After a short time I grew weary of changing into wet garments twice a day, and adopted the practice of sleeping in my shirt, taking it off only on the rare occasions when I indulged in the luxury of a bath and change of underwear.

Our other Nissen hut served as a mess and was comparatively comfortable, being heated by means of a stove improvised from an old oil drum. Aside from the stove, the only furniture the mess contained was a rough board table which our carpenter had made and a couple of long benches upon which we sat at meals, and which we drew up before the stove as we gathered around it for warmth in the evenings.

For the accommodation of our patients, we had two large huts, one of which served as a surgical and the other as a medical ward. I had charge of the medical ward. It contained about thirty or forty beds a row along each side of the hut, with an aisle down the middle. The beds were merely frames of rough scantling

covered with "chicken netting," on which blankets were spread, there being no mattr sses or sheets. The patients in these wards were all men likely to be fit for duty in a week or ten days, more serious cases not remaining with us but being sent on as quickly as they came in to the casualty clearing station, which was at rail head. We had no nurses; all the work was done by medical orderlies. Also, no facilities were provided for anything beyond the simplest kind of operative work. For anything more elaborate cases had to wait until they reached the C. C. S., where there were trained nurses and a well-equipped operating room.

My first work in the morning was, usually, to make rounds on my ward. After this there would be various odd jobs to do, and all day patients were coming in from the line who had to be examined and admitted, or else sent on by motor car to the C.C.S. In the evening, after dinner had been cleared away, the day's outgoing mail was dumped upon the table and everybody took part in the work of censoring it. The pile was always a large one, for we not only handled the letters of the men belonging to our unit, but those of our patients as well. They, not being very ill, spent most of the day writing letters, which the unfortunate medical officers had to read in the evening. There was one amorous youth who had five girls in England to whom he wrote regularly. I will say this for him, however,—he played no favorites, for, barring only the difference in names, the five letters which he sent out each day were exactly alike.

After a short time in the ambulance I was sent forward to an advance dressing station. An A.D.S. is a post close up behind the lines, to which the sick and wounded are brought in order that they may receive first aid and then be sent back by motor car to a field ambulance or casualty clearing station. I found our dressing station in a pretty little village which nestled in a valley. Along the crest of a hill overlooking this valley were the German trenches. Old Fritz, sitting up there and looking down upon us, could have wiped us off the map at any time. He did not do it because he had better use for his ammunition, and because, moreover, we could have retaliated by wiping out one or more of his villages, which lay similarly exposed to our guns.

In charge of this dressing station were another doctor and myself; we occupied part of a rather fine old house, a French family occupying the rest of it. The Germans had a nasty habit of raking the road in front of us with their machine guns at odd intervals during the night, in the hope of catching any traffic which might be going up under cover of the darkness. Sometimes their bullets pattered on the walls of our house, and as the room we used for our mess faced toward their trenches, it was necessary to wall up the windows with sandbags. This left the room in almost complete darkness, and so we had to keep a candle burning whenever we occupied it. The shells from the German batteries roared overhead both day and night, but as they were usually aimed at targets far in our rear, they gave us less annoyance than one of our own six-inch howitzer batteries which was hidden in a wood just behind us and fired directly over our heads. We had no glass in our windows; in fact, I doubt if there was a whole pane of glass left anywhere in the village. Instead, we had pieces of cloth tacked onto the window frames. Every time the battery behind the house fired, the force of the blast would blow in our flimsy cotton window coverings and we would have to go around and nail them all up again.

As in nearly all the billets in France, we suffered a good deal here from the cold. For our personal use, we received daily one scuttle full of black dust, euphemistically referred to as coal. Whenever we tried to build a fire of this stuff most of it would fall at once through the grate and be lost in the ashes. Because we had such a limited supply, we seldom lit a fire in the morning. We escaped the cold at breakfast time by having our breakfast brought to us in bed and at lunch we wore our greatcoats. Then in the evening we were able to have our fire lit and dine in comparative comfort.

In addition to attending the sick and wounded who came to the dressing station, it was part of my duty to visit daily several aid posts, small advanced stations manned only by orderlies. This meant a walk of several miles, part of it over open roads that were sometimes shelled, and part of it through the trenches. Of course, I always wore a helmet and carried my gas mask. When in a forward position no sensible man ever permits himself to be separated from his mask. We made it a practice not to go even from one room of the house to another without taking our masks along and placing them in a

convenient position where they could be slipped on at a moment's notice.

I shall spare the reader all account of my experiences while serving as a regimental M. O. with a brigade of field artillery, and after that with a battalion of infantry, positions which I held only for a very short time, and shall pass on to my last job, which was that of M. O. to a group of heavy artillery. This is regarded in the army as a "cushy job." The duties are light and the living conditions comparatively comfortable. Moreover, it allows of a great deal of personal independence and freedom from red tape.

When I first joined the heavy artillery we were billeted in a village around about which our batteries were stationed. It was my business to visit these batteries daily in order to attend the sick and to see that the sanitary and living conditions generally of the troops under my care were kept up to the highest possible level. To enable me to do this, I was provided with a motorcycle. When the roads were too muddy for the motorcycle, I used a horse, and where a horse couldn't go, I walked.

I had never ridden either a motorcycle or a horse before entering the army. The first week or so that I attempted to use the motorcycle I fell off, at least once every time I went out with it, returning home plastered with mud. After a while, however, I began to gain control over my machine, and by the time I left France, I considered myself quite a skilful rider. With my horse, the story was very different. I had allotted to me an old gray mare which had no respect whatever for my wishes or opinions. She always wanted to travel in an opposite direction to that in which I had planned to go and she usually wanted to travel at a lively pace. Now painful experience has demonstrated the fact that for me a very gentle trot is best; when the speed is increased my style tends to deteriorate, and I do not present a dignified appearance to the troops which are continually passing on the road. In going my daily rounds I had to pass along a road, on one side of which were a number of batteries. As I rode past these guns they would frequently begin to fire, and when that happened my mare would at once begin to get up speed. When this happened, the first thing I did was invariably to lose my stirrups, and as I strove frantically to recover them, I would be bounced mercilessly about, and every time I came down in the saddle I seemed to hit it in a new place; at the same time my steel helmet would rattle and pound on the top of my head, being prevented from flying off altogether only by the strap, which I always took good care to fasten securely under my chin before mounting; then my reins would become entangled, and as I instinctively humped forward in my saddle, the gas mask, which I carried slung over my shoulder, would swing around in front of me, and get mixed up with the reins or pound me in the stomach. In this plight I would pass groups of Tommies in the road who would line up and salute as I went by, concealing derisive grins behind their upraised hands.

The cases which I had to see in the course of my rounds were seldom of a serious nature. There were teeth to pull and boils to lance; there were coughs and colds and chilblains, and also German measles. During one period I used to spend about half my day inspecting billets and contacts quarantined because of this childish ailment.

For some time after I joined the heavy artillery we were billeted in villages close behind the lines, but following the big battle on Easter Sunday of last year, the enemy fell back and we moved up into a country where there were no villages, only shapeless heaps of brick and rubbish. Here we lived out in the open. At first I occupied a Nissen hut, but later constructed for myself a tiny dugout in an old German trench. Then, as the weather grew warmer, I built outside the door of my dugout a sort of veranda with a roof of corrugated iron and walls of canvas, which ordinarily were kept rolled up out of the way, but could be left down when it rained. As things grew quieter in that part of the line, having very little to do, I amused myself by digging up wild flowers in the neighboring fields and planting them around my veranda. As the season advanced, these flowers grew large and formed a pretty screen about it. Here, during the summer afternoons, I used to lie on an improvised couch, and write letters or read. Behind me was an observation balloon and frequently, as I lay reading, the Germans would begin to fire at it, their shrapnel bursting directly over my head. However, as it was very high up and the bullets carried a long distance before they reached the ground, I was in no danger from it, and so it did not interfere with either my reading or my peace of mind.

I also slept on the veranda. During that time the Canadians were attacking Lens, which was some distance to the north of us, and after I had turned in at night, I could lie and watch the continuous flashing of their guns as they boomed away in the distance until, becoming drowsy, I would roll over and drop off to sleep.

I remained with the heavy artillery until autumn, when I received my discharge, and after a short stay in England, returned to America. As I look back upon my period of service with the British Army I feel that it was, on the whole, a pleasant one. I did not gain much in the way of professional knowledge,—the medical officer in the line never does. The conditions he has to treat are, for the most part, simple ailments. When he has a serious case he never treats it himself, but sends it back at once to the hospital. As a rule, he is not very busy. During a big attack he may be worked very hard, but big attacks are few and far between, and in the long intervals which intervene, his life is rather leisurely and humdrum. On the other hand, he has an excellent opportunity to observe the great game of war as it is being played in Northern France today. He lives, as a rule, a wholesome outdoor existence, and along with this there is a zest, a freedom about the life which makes a return to the narrow round of duties and petty restrictions of civilian life extremely irksome. After all, the human race has been almost constantly engaged in warfare from the beginning of history. Man has evolved under conditions where it has been necessary always to fight. The soft-sheltered conditions of our present civilization date only from yesterday, and it is not surprising that men readjust themselves very readily to the old primitive life and that, notwithstanding the dangers and discomforts, come, after a short time, really to enjoy it. When the longed-for peace comes, and the men, returning from overseas, take up again their former occupations, many a one will long for the old days of active service with all their hardship and danger.

AMERICAN PROCTOLOGIC SOCIETY.—Owing to conditions brought about by the war, the American Proctologic Society has decided not to hold its meeting in Chicago on June 10 and 11. The Society will probably not meet again until after the war is over.

HOSPITALS AND VOCATIONAL TRAINING.*

BY RICHARD P. BORDEN, FALL RIVER, MASS.,
Secretary, War Service Committee, American Hospital Association.

THE problem of vocational training for the disabled is one which directly concerns hospitals and is largely dependent upon their cooperation. While the immediate need is for soldiers and sailors, its value is equally great for those incapacitated in civilian pursuits. Preparation should, therefore, be for permanent installation of vocational training for therapeutic and rehabilitation purposes. Civilian hospitals should be considered as the centers of vocational training and properly equipped therefor as in this way only may permanency be assured.

"The average program for a man incapacitated for further military service overseas may be described as follows:

First, a period of acute illness or surgical care; second, a period of convalescence, frequently of long duration; third, vocational reeducation. These stages may merge imperceptibly into one another or they may be separate or distinct. In many instances one or two of the stages may be altogether omitted." (Report, p. 11.*)

As will be seen later, vocational therapy should begin as soon as the patient's condition will permit, and both therapeutic and rehabilitating teaching should be done in consultation with the physician. All stages of the patient's progress, therefore, should be provided for in his initial location after his return to this country.

"While many of the patients will have the opportunity to complete the training begun in the curative workshop in the vocational school, many others will be able to go directly into wage-earning occupations. The period of occupational therapy must, therefore, be used to prepare and adjust many patients to civilian life." (Page 13.)

Therefore the hospital should be located in the neighborhood of industrial facilities and, as the desired result is permanent occupation, in the place where the patient, his family, and friends reside—in other words, in the patient's home town. This is emphasized by the following:

"Canadian figures show that 80% of the disabled men are able to return to their former in-

* An Analysis of the Report of the Federal Board for Vocational Training entitled: "Rehabilitation of Disabled Soldiers and Sailors —Teachers' Training for Occupational Therapy" (Senate Document 167) in its relation to hospitals.

dustry without vocational training, that 10% need complete vocational re-education, and 10% partial reëducation. It, therefore, follows that 80% of the men receive no further instruction after leaving the curative workshop, and that 20% receive varying degrees of vocational re-education." (Page 18.)

"Whenever possible, the man should be directed into a former occupation so that all possible use may be made of his past experience." (p. 60.)

"When a new occupation is selected it should be one whose processes are kindred to the old trade and whose tools and raw materials will be as familiar to the worker as practicable." (p. 61.)

Industries frequently are grouped in certain cities. For instance, the steel industry, machinery, boots, textiles, etc., etc. Opportunities for resuming a former industry or some branch thereof are greater in the man's original habitat.

"Even technical schools, with a variety of equipment, are not always able to teach all of the skilled trades, and the student must, in many instances, get his final instruction in the factory itself." (p. 33.)

The desirability of assigning patients to hospitals in the vicinity of their homes is accepted in the report.

"Since the reconstruction hospitals will be located in different sections of the country, and the patients will be sent to the hospitals suited to their needs nearest their homes, it will not be necessary to install all lines of occupations in industry, commerce, and agriculture in every hospital. For instance, the hospital in the Middle West would need agricultural opportunities rather than the textile trades of New England. Those occupations should be taught which are typical in the area to which the patients will return." (p. 33.)

The economic and efficiency value of such apportionment of patients is suggested in the above. Few men can be obtained who can master and teach all industrial occupations or learn the various opportunities of each for the disabled. Yet they must know the opportunities and risks of the trade which they advise and prepare their patients to follow. (See Report, p. 61.)

While it is desirable that the patient should be discharged from the hospital as soon as his condition permits, from the physician's point of view, in order that he may not acquire the hospital habit, become a malingerer or hospitalized, nevertheless,

"Permanent provision must be made for the medical treatment, vocational training, placement, and follow-up work for the disabled men." (p. 65.)

Thus the need of using permanent institutions is apparent. The patient should, in case of recurrence, be enabled to return to his accustomed hospital, where his histories are available, his constitutional condition known, and his needs best recognized. Moreover, in such a permanent institution only can proper "following up" be done. Often patients do not recognize the opportunity for improvment, and are averse to further treatment. They, therefore, will not return for examination, advice and further treatment unless properly followed. On the other hand, many patients in pain or distress voluntarily seek aid in the hospital from which they were discharged.

It cannot be expected that general military hospitals will be maintained in the number required for war after peace ensues. When such hospitals are abandoned their former patients will know of no place to go and there will be no following up. By the use of existing hospitals for military purposes, the problem is quickly solved. After the patient is discharged from military service he can return to the same hospital, near his home, under the auspices of the War Risk Insurance Bureau, and thus his opportunities for medical and vocational treatment will be made continuous.

In this connection it should be borne in mind that both the Army and Navy men will need vocational treatment; that the provision for such treatment should not be duplicated, because of the cost of equipment and the scarcity of trained teachers, and that the assignment of an occupational teaching force and a common vocational school to a group of civilian hospitals will make such facilities available to both services.

"The disabilities of industrial accidents have many points in common with the disabilities of war, and if occupational therapy is a war measure necessary for the returned soldier and sailor, it would seem to be just as urgent for the victims of civil disabilities, who outnumber the military victims by a conservative estimate of thirty-eight times." (p. 68.)

It is necessary for the War Risk Insurance Bureau to make use of civilian hospitals for the treatment of discharged men who come under its jurisdiction. No other plan is practicable, and it is understood that arrangements with hospitals for this purpose are already in progress. Moreover, as noted above, industrial

needs for vocational training after injury even exceed those of the military services and, therefore, as

"It was stated in the minutes of the first two meetings of the committee for reëducation of war cripples, held in Paris in July, 1917, that—

"The institutions would not cease to exist with the conclusion of peace, but would then take up all questions relating to victims of accidents at work."

"Prof. Jules Amar has said:

'The war will be over, but the industrial work and the necessity for the scientific study and physical organization of it will be with us forever.'"

"There will always be the need for rehabilitation of the damaged human material discarded from the industrial world.

The economic and social problems which are crystallizing in the present emergency—as T. B. Kidner has pointed out—are only made more apparent through their being forcibly brought to our attention by the urgency of the disabled soldier problem; if, for instance, any doubts exist as to the necessity for a broad and generous scheme of industrial training for the nation, the contrast in the outlook for the future between the disabled men who have been trained thoroughly in technical lines before enlistment and those whose only commodity was unskilled labor, should remove them. On the one hand, confidence and calm serenity; on the other, fear and dread of the future. We are already hearing of preparedness for the 'war after the war.'

Occupational therapy touches all those vital problems and must be utilized in the future, not only in healing and alleviating more extensively those whom it now touches, but in reaching all classes." (p. 68.)

In the interest of economy and efficiency, as well as for the ultimate welfare of the citizen soldier, is it not evident that the plan of utilizing civilian hospitals should be given serious consideration with adequate investigation and study of all the elements involved?

The average daily number of beds unoccupied in general hospitals in the United States is 40,000. True, a large proportion of these are unavailable for military use, but it is believed that with this foundation the number of beds which can be temporarily added to the existing institutions, plus those which, for one reason or another, must be provided in purely military hospitals, would meet all requirements for general hospitals.

The experience of Canada indicates that for every 1,000,000 men sent overseas, 10% are returned home as unfit for service, and about 30,000 of these will be in hospitals at one time. (Report, p. 15.) The blind, tuberculous, convalescent, and neurasthenic should be placed in special hospitals, and surely the remainder could easily be accommodated by utilizing the well-organized, constructed and equipped hospitals in our principal cities in addition to the purely military hospitals necessary in certain localities.

No attempt has here been made to point out the many other reasons for adopting the plan of utilizing existing hospitals for military purposes. Suffice it to say that from every point of view excepting the necessity for military control, the arguments favor the proposition, and that this sole objection is not insuperable is shown by experience in the past, as well as the present war period. Surely the authority of military discipline is broad and elastic enough to cover the situation.

"Inasmuch as the period of adjustment to civilian life is difficult, and since only about 20% of the men have the opportunity to adjust themselves during the period of vocational education, it is evident that some kind of preparation for civilian life must be offered to the 80% who will be able to return to their former work after convalescence without further training. The curative workshop, like the other departments of the hospital, must be under military discipline. Authority is necessary during convalescence so that the men shall not retard or even permanently prevent their recovery by excessive exercise or rest, wrong food, or bad habits. The 'work prescription' must be enforced just as rigidly as any other kind of prescription. Beyond this point, and except in rare instances, there should be no recourse to military discipline.

The greatest benefit derived by the men is the hardening of the mind and muscle in preparation for civilian life." (p. 64.)

Military discipline will be needed in the "general reconstruction," tuberculosis and convalescent hospitals for two purposes, viz.; to preserve order and to enforce the regimen. With a proper system of punishment and the slight machinery necessary to carry it into effect, there should be no difficulty. A hospital for the unruly might be desirable or there may be other ways of obtaining the desired result. The fear of punishment is the army as well as the civilian way of preserving order, and it may be made to follow men in hospitals as well as in camps or on liberty. But, as pointed out, the hospital should be used as a place to wean back the soldier to the responsibilities of civilian life, and

the gradual slackening of military guardianship will be beneficial.

Hospitals have already begun to develop the plan of occupational training.

In the report of the Social Service Department of the Lakeside Hospital, Cleveland, for 1915, it is said "We should like to enter a plea for an employment bureau equipped solely for handicapped."

The Modern Hospital for June, 1917, is largely devoted to a history and discussion of the subject.

Many hospitals have begun, or are considering the advantages of, such work. The civilian hospitals are, undoubtedly, ready to coöperate if given the opportunity.

SUMMARY.

To insure permanency in vocational training, civilian hospitals should be utilized.

The need for such training will continue after discharge from military service.

Military hospitals should be located where there are industrial facilities.

The training should be in the line of former occupation, therefore men should be returned to hospitals near their homes.

There will be need of recurrent treatment, so the hospital should continue within reach of the patient.

The "general reconstruction" hospital should be permanent.

There should not be unnecessary duplication for the Army and Navy.

The money spent in establishing vocational schools should not be wasted. They should be continued for industrial needs, and thus be perpetuated for possible future military service; like universal military training, an element of preparedness.

Civilian hospitals used for military purposes are available for discharged men under the War Risk Insurance Bureau and the U. S. Workmen's Compensation Bureau. The vocational schools established in such would be available for triple use.

Economy and efficiency are satisfied.

Civilian hospitals can be made to meet capacity requirements.

Military discipline can be preserved.

Hospitals are ready to coöperate in vocational training.

SPONTANEOUS PNEUMOTHORAX COMPLICATING PULMONARY TUBERCULOSIS.

By Herbert F. Gammons, M.D., Carlsbad, Texas.

The diagnosis, treatment and prognosis of spontaneous pneumothorax is dependent upon whether the pneumothorax is complete or partial, and whether the opening in the ruptured area is open or valvular, or whether it has closed.

The partial pneumothorax is the result of adhesions limiting the escape of air to the pleural cavity and is, therefore, localized, and if the opening is not valvular, the prognosis is good, and the treatment, rest. If there is a valvular opening, it is often necessary to withdraw the air in left-sided cases especially, and where there is much discomfort.

In the complete type with a valvular opening, we have at times a very troublesome complication, especially when the rupture is on the left side.

Spontaneous pneumothorax is very infrequent in ordinary life, although in war times we must expect the number of cases to be greatly increased. Marshark and Craighead[1] review the literature and report a number of cases of recurrent ruptures, and in summarizing, they find that the greatest number of recurrences occurred in people who showed no demonstrable tuberculosis, and the majority of them recovered. Wallgren[2] has met this complication in two cases as a result of needle puncture during administration of artificial pneumothorax.

I have seen only six cases out of approximately six thousand studied from one to twelve months. It is quite possible and probable that many partial ruptures have been overlooked in the far-advanced cases where, on account of adhesions, the rupture did not produce much discomfort.

Following is a brief history of these cases:

Case 1. Male, moderately advanced case, upper two-thirds of left lung infected and scattered areas in right. Complained of sharp pain in left lung at the top, appeared very nervous, dyspneic, and was cyanotic. Examination showed complete valvular pneumothorax of the left side, with the heart pushed over to the right chest entirely. Patient died two days later.

Case 2. Female; advanced case, both lungs entirely infected. During a coughing attack

experienced severe pain in the right lung, was very dyspneic and nervous. Patient died in twenty-four hours.

CASE 3. Male. Advanced case; right lung entirely infected, with areas scattered in the left. After a severe coughing spell expectorated small amount of blood and complained of severe pain in the right chest; dyspnea marked, very nervous and temperature and pulse elevated. Examination showed right complete pneumothorax. Patient gradually improved and six months later developed an effusion in the right pleural cavity, which was allowed to remain for some time, but eventually was withdrawn. Patient gradually declined, and the area at the site of operating did not heal. Patient died short time after.

CASE 4. Male. Moderately advanced case right lung, upper two-thirds infected; left, few scattered areas of infection. After severe coughing, complained of severe pain in the right chest, dyspnea, rapid pulse, elevated temperature and marked nervousness. After a few hours, patient had developed a subcutaneous emphysema of the upper part of the body on the right side and was markedly dyspneic. Examination showed a complete pneumothorax with a valvular opening on the right side. A large cannula and trochar were inserted over the rupture and the chest bound down with adhesive plaster. Patient made good improvement and six months later had an operation for empyema. At present is doing well.

CASE 5. Male. Moderately advanced; left lung has scattered infection throughout, with a possible cavity in the lower third. Right lung, few scattered areas of infection. After severe coughing attack, experienced a severe pain in the left chest in the area of possible cavitation; markedly dyspneic, cyanotic, and temperature and pulse elevated. Examination showed left pneumothorax, with probable valvular opening. Air was removed at different intervals. An effusion developed and was withdrawn, and the pleural space was filled with air. Patient doing well, but effusion persists.

CASE 6. Male. Moderately advanced; both lungs infected in upper halves. After a severe coughing attack developed severe pain in the left side, with marked dyspnea and cyanosis. Examination showed a complete pneumothorax of the left side with a valvular opening. Air was withdrawn, using the apparatus recently described[3] by connecting the tubing to the inlet tube and using the water suction. Patient was much relieved, and after three withdrawals of air is doing well.

In withdrawing air it is best to withdraw as much as possible and not go by the manometric readings, as often in these cases the manometer shows marked negative pressure; at the same time the patient is very dyspneic and cyanotic.

The first few cases that were cited occurred a number of years ago, before the artificial pneumothorax apparatus was used very extensively, and it was considered that interference in any other way would not be beneficial.

Lately we realize the good that can be obtained by withdrawing air in these rupture cases, and while formerly the spontaneous rupture of the lung was considered a fatal complication in pulmonary tuberculosis, still now the prognosis in these cases is much better, although many cases develop an effusion which in a number of cases becomes purulent. Properly treated, the complete pneumothorax of the left side is very favorable.

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[2] Wallgren: Upsala Läkareförenings Forhandlingar, xxi, No. 67.
[3] Gammons: Improved Method of Refilling Cases Treated by Artificial Pneumothorax, Journal A. M. A., Mar. 23, 1918, p. 843.

Medical Progress.

RECENT PROGRESS IN PSYCHIATRY.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

THE TEACHING OF PSYCHIATRY.

MEYER[1] thus summarizes the present trend of teaching psychiatry:

1. Psychiatry cannot limit itself to the traditional asylum-diseases. It has become the medical study of all types and forms of disorders or involvements of the total behavior and mentation, from the simplest, we might say normal, defects and difficulties of adaptation, to the more sweeping affections, some of which may disqualify the patient for being his, or her, own safest guide and adviser, and then may enter the category or temporary phase of committable disorders.

2. The second-year course of the medical student includes the methods of recording a medi-

cally useful biography, of using the standard tests of intelligence and motor performance, of making out the principal facts and determining factors of a normal individual's make-up and reactive tendencies.

3. The third-year course deals with the standard reaction-types or reaction-complexes of psychopathology and the factors entering into them.

4. The fourth-year course takes up the general routine of cases, and the study of special problems and an individual study of at least six cases by each student.

5. The principal departure from tradition is the inclusion of normal psychobiologic adaptive problems, and the getting away from the dogmatic notion of "one person, one disease," dictated by a classification-ridden tradition, and from a nosology which neglects too many points important for the understanding and treatment of the actual patient.

6. Hence, we should say that the student is led to recognize the facts and factors entering into the simple entities and combining in the more complex disorders, so that he may get a dynamic, as well as a structural, conception of the patients whom he is called on to treat.

One of the principal consequences of this mode of instruction is that the students frequently find patients in other divisions of the hospital who, according to their impressions, should be referred to the psychopathologic or psychiatric department, especially many of those patients who, according to the internist or surgeon, "have nothing the matter with them," but who should not be sent away without a study of their psychobiologic adaptation. It is probably not practicable to transfer all these patients; hence, why not get accustomed to use the psychologic training wherever it is needed? We have to realize that in all branches of medicine, physicians are expected to apply psychopathologic methods, just as modern psychiatrists make use of all the methods and experience presented by the other departments of medicine, even if the patients have mainly psychopathologic problems.

Another consequence is that quite a few students begin to see, in conditions which are looked on as normal or as merely nervous, possibilities of readjustment which may become of inestimable value to the patient and in the interest of preventive medicine and hygiene because the worker is put into the position which enables him to deal with the component factors before the full-fledged traditional pictures have established themselves, and have begun to overawe both patient and physician.

RELATION OF SYPHILIS AND TABES.

If it be true, as Church holds, that one man in every five is syphilitic, then of no less import, according to Throckmorton,[2] is a further statement that every case of syphilis, from the very incipiency of the infection, is, once and for all, primarily, a case of nervous syphilis. These statements, to say the least, are astounding, and if valid, cannot help but have great bearing on the future consideration of this disease.

The predilection of syphilis for nervous tissue is well known, and to a degree may be satisfactorily explained on strictly embryologic grounds. Every syphilographer and dermatologist knows well that syphilis is a disease which clinically, in characteristic cases, is potent to form well-marked skin lesions. This point, then, on the selective action of the disease, would appear to be well taken when one considers that both nervous and skin tissues have their origin from ectoderm, the outer layer of blastodermic membrane. In a further consideration of the selective action of syphilis on the body tissues, it would not be unreasonable to assume that, in those cases manifesting the latent effects of syphilitic action on nervous tissue, disorders of the skin and mucous membranes are insignificant or entirely absent. In other words, the so-called secondary symptoms of syphilis would appear to play an exceedingly minor rôle in those cases which, later, are so prone to develop the late or so-called tertiary manifestations of the disease. The truth of this statement will be amply borne out by those who have carefully considered the histories of patients suffering from tabes or paresis. Here, the absence of marked secondary phenomena would appear to be the rule rather than the exception. This leads to the natural conclusion that the battle waged by the products of syphilis in such cases is one mostly, if not entirely, against nervous tissue, allowing the cutaneous structures a respite against the invasion of so formidable an adversary. The occurrence of conjugal tabes or paresis is merely a strengthening link in the chain of evidence, showing that the spirochetes are capable of variation, and that under circumstances, perhaps not as yet well understood, strains are transmitted which are capable of

producing those destructive lesions of the central nervous system sometimes encountered even in the conjugal state.

PERSONALITY IN PARESIS.

Osnato,[3] under this head, points out that for many years psychiatrists, and other clinicians, have been puzzled by the fact that, of the great number of persons who are infected with syphilis, only a few, probably less than 3 per cent. of the total number of syphilities, eventually end as pareties. If we, therefore, postulate in these patients the presence of a defect in the nervous system, particularly the brain, which exists either as a hereditary or as an acquired weakness, then Adler's conception of organic inferiority helps to explain the problem. Adler conceives that the neurotic is somatically inferior, also that this inferiority affects more than one organ and that, as an over-compensation medium, the central nervous system is always involved. In other words, if we can prove that, before the onset of his psychosis, the psychotic paretic is practically always a neurotic, then we can go further and say that paresis has developed in him because the central nervous system is an inferior organ and the inferiority serves to determine the location of the characteristic destructive process caused by his syphilitic infection.

PSYCHOTHERAPY IN CHRONIC INTERNAL DISEASES.

Yarotzky[4] pleads for the physician to realize that his connection with a case of chronic internal disease is not restricted to giving the patient directions as to food, drugs, exercise, etc., to enable him to keep up under his chronic disease and postpone the fatal outcome as long as possible. The physician should realize what it means for a man who has lived mainly for the pleasures of the table, for example, to be obliged to restrict himself to the housing and diet necessary with severe chronic kidney disease. He keeps transgressing the doctor's directions, and the doctor gives him up as doomed. Instead of this the physician should step in and aid the patient to acquire an entirely new view of life and attitude of mind; live for others, cultivate a love of art and of science, interest himself in his environment—in short, instill idealism, altruism, as a physiologic factor. In his practice he has noticed that persons who develop pneumonia or diabetes have almost invariably passed recently through some severe emotional stress or financial worry.

The fear of death, which acts like a whip in acute disease, grows dulled in the chronic, and the patient debates whether mere living is worth all the trouble. Here is the field for psychotherapy, as an adjunct to all that medical skill can suggest in the special case. It is indispensable to enable the patient to profit by the physician's skill otherwise. Yarotzky claims that the physician can train the patient's feelings, ideas and ideals, just as he can train an organ to strengthen it. The lack of this sustaining psychotherapy is what drives so many to Eddyism and other fads which make their appeal to the mind. Altruism, idealism, public questions and service, photography and other hobbies—interests of this kind are a potent factor in keeping well and in aiding in the struggle against disease.

Yarotzky takes up, in turn, chronic disease of the various internal organs, showing the influence of the mind in their course and even on their inception, especially excessive secretion of hydrochloric acid with its evil train. He emphasizes that the physician, with his examinations and directions, focusses the patient's attention on some organ and thus, by suggestion plus autosuggestion, may induce exacerbation of existing derangement. He urges the physician to trust more to his intuitions, explaining how these are the crystallization of a lifetime of subconscious impression from the environment. The wearing out of organs is merely a subordinate factor in old age. The richness or the poverty of the individual's mental life is the predominant factor. In conclusion, Yarotzky reiterates that the physician is too apt to pay scant attention to the patient's psychic life, and yet this is the key to success for his other measures in some cases.

ALIENISTS AND PSYCHIATRISTS.

Southard[5] proposes that the term *alienist* be used of experts in the forensic or medicolegal subdivision of mental hygiene, dealing with *insanity*, and that the term *psychiatrist* be used of medical experts concerned with *mental diseases*. As a minor point in nomenclature, it is proposed to distinguish the *alienistics* of a case from the *psychiatry* thereof. As insanity stands to mental disease, so alienistics would stand to psychiatry. Alienistics would be primarily a branch of law, psychiatry a branch of medicine.

Five or six subdivisions of mental hygiene are mentioned as existent or developing. *Public* mental hygiene has the two well-established subdivisions, institutional and medicolegal. *Social* mental hygiene has produced effective social service. It is a question how far character handicap work can go; but there are signs of a specialty in mental hygiene here also, using practical psychiatric, social-service and social-psychological categories. *Personal* or *individual* (medical) mental hygiene is founded on the achievements of practical psychiatry which may now be regarded as a specialty independent of institutional mental hygiene and of "alienistics." But metric psychiatry is gaining ground, following the work of Binet, and "mental tests" promise to be of value, not only in "mind-lack" and "mind-loss" questions of practical psychiatry, but also (at least negatively) in the field of character handicap work in employment and vocational choice.

THE VALUE OF THE WASSERMANN REACTION.

Symmers and Darlington's[8] investigations lead them to the following conclusions as regards the value of this reaction:

1. Depending on the antigen employed, the Wassermann reaction in the living patient, as carried out at Bellevue Hospital, gives a negative result in from 31 to 56 per cent. of 331 cases in which the characteristic anatomic signs of syphilis are demonstrable at necropsy.

2. The Wassermann reaction in the living patient is positive in at least 30 per cent. of cases in which it is not possible to demonstrate any of the anatomic lesions of syphilis at necropsy.

Military Psychiatry.

FUNCTIONS OF AN ARMY PSYCHIATRY CLINIC.

In the matter of advanced psychiatric centers Crinon[7] urges the importance of recording on the wounded man's card, from the very first, the notice of nervous or mental upset. Psychic changes should be recorded as scrupulously as the organic. It is now officially ordered that the concussion syndrome has to be specified on the card. The "psychically disabled" should have their record as complete from the first as is the rule for the physically maimed. This would permit also suitable measures from the very first, when they are much more likely to prove effectual. The influence on the brain of physiologic disturbances from shell shock or toxi-infections should be arrested as early as possible. To neglect this allows the psychic changes to deepen and crystallize into delirium or confusional states. All this requires advanced psychiatric stations. Their existence is still further justified by the important task of sifting out the men to be sent to the nerve centers and the psychiatry centers farther back from the front. Many men only lightly affected could do well in them and be promptly restored to full duty. Sent back into the interior, their psychic disturbances become more and more confirmed and durable. At the best, the men are returned after months of convalescence when, if they had been given specialist treatment close to the front, they would have been in the ranks again in much less than a month. Toxic delirium of alcoholic origin is often mistaken for a more permanent trouble. It requires only a special course of internment and treatment which is as available in a well-equipped, advanced psychiatric station as elsewhere. Men subject to convulsions can also be kept under observation here, and the nature and number of their attacks determined. Crinon thinks it is as absurd to exempt men from service on account of a single epileptic seizure—which is now the regulation—as to exempt those who have not good teeth.

NEUROTICS IN MILITARY SERVICE.

Gordon[9] directs attention to the fact that types, varieties, and subvarieties of neurotics are many. While all are unfit for actual military work at the firing line, some of them nevertheless are capable of performing some duties of a nature different from fighting. A good number of them could be utilized for work of a secondary character behind the firing line and thus release the men who are more fit to face the enemy. A large contingent of good and strong men will thus be added to the fighting force. The home examining psychiatrist, after a profound study of the recruit's personality, will determine the variety of the neurosis and the degrees of its development, and will thus be able to make suggestions and recommendations to the military authorities as to the kind of work a given neurotic individual could be assigned to. A systematic plan can be worked out by which the examining psychiatrist will familiarize himself with the multifarious duties incidental to military service in wartime so as to be able to make the proper recommendation in behalf of those neurotic men who are not totally rejected.

WAR NEUROSES IN WAR PRISONERS.

Lust[9] cites Mörchen's report that he found only five cases of war neuroses among the 40,000 war prisoners at the Darmstadt prisoners' camp. The majority reached the camp within three days of having been taken prisoner, and a number came from the Verdun region. There is every reason to assume that they had been subjected to the same kind of mechanical and emotional stress as the German soldiers, and yet the hysteric nervous disturbances, so common among the soldiers, were found only in one among each 8,000. Lust has also recently reviewed 20,000 war prisoners to select those to exchange, and he, too, found the war neuroses rare among both military and civilian prisoners of war. He calls attention to this as disproving certain prevailing theories as to the mechanical and psychic causes of war hysteria.

EXHAUSTION PSEUDOPARESIS.

Hunt[10] describes a fatigue syndrome simulating early paresis, developing under intensive military training. His cases were characterized by certain somatic symptoms strongly suggestive of early paresis, namely, the pupillary changes, the tremors, and the disturbances of articulation. This triad of symptoms was so manifest, and resembled so closely those observed in the early stages of paresis, that the clinical diagnosis appeared reasonably certain—an interpretation which seemed all the more probable as he had already demonstrated cases with apparently similar symptoms in which the diagnosis had been confirmed by serologic tests of the blood and cerebrospinal fluid. It was a surprise, therefore, when the serologic reports were returned negative and the various symptoms gradually subsided under appropriate rest and treatment. The gradual abatement and final disappearance of all suspicious symptoms at the end of a week's rest would indicate an exhaustion of the cerebral centers as the probable cause. Under still greater provocation of stress and strain it is not improbable that such fatigue symptoms might even be the forerunner of a more serious type of exhaustion neurosis or neuropsychosis.

EXPERIMENTAL SHELL SHOCK.

Mairet and Durante[11] reproduced, with rabbits, the violent shock from explosion of a large shell in the close vicinity without direct contact with particles of the shell. Five of the twelve animals died in the course of five minutes, one hour, or one to thirteen days. The others, after a brief, stunned condition, with acceleration of the respiration, and transient agitation, rapidly recovered and were slaughtered later. Minute hemorrhages were found numerous in the lungs, spinal cord and nerve roots, and a number of small vessels in the gray substance of the cortex had ruptured into the sheaths of lymphatics. The smallness of these hemorrhages and the fact that they did not diffuse testify that they occurred instantaneously in consequence of the depression which followed the compression. These histologic hemorrhages entail anemia of the smaller territories beyond them, which explains the areas of softening to which Jumentie and Claude have called attention. These very numerous, but very restricted, lesions correspond to the symptomatology of men suffering from shell shock, especially the amnesia which may result from the anemia in certain small areas, the neuralgia, and the pains at the emerging points of the nerves. The latter correspond to the intraradicular hemorrhages found in the rabbits. This may also be the explanation of certain cases that have been published, in which the clinical picture of tabes came on suddenly after shell shock, with negative Wassermann reaction and a rapid course. It may also explain the galloping course of general paralysis after concussion from an exploding large shell.

A DISTRICT ASYLUM AS A WAR HOSPITAL FOR MENTAL INVALIDS.

Hotchkis,[12] after showing the administrative changes necessitated by the conversion of an asylum into a war hospital, gives an analysis of cases admitted during the first year to the Renfrew District Asylum. Of these, 111 were non-expeditionary, and 831 had served in one or other of the expeditionary forces. The paper deals with the latter class alone, which included five German prisoners. The analysis of these was as follows:

Manic-depressive—188 cases (21 per cent.). Mania, melancholia and stupor. Resembled civilian cases in their symptoms, modified by the experiences they had passed through. A great many had had previous attacks.

Alcoholic Insanity—152 cases (18 per cent.). The delirium tremens cases exhibited two types—one who broke down as soon as the alcohol was cut off on going on board the leave boat, the other showed no signs till again in the firing line. In contrast to these were the chronic delusional cases—generally elderly men stationed

at the base. Another class exhibited various symptoms: confusion, depression, excitement, and generally always hallucinations. The campaign precipitated the mental breakdown in all these alcoholic cases, and 18 of them were cases of cut throat.

Mental Deficiency—151 cases (18 per cent.). Included all degrees of weak-mindedness, and divisible into those who were vicious or moral imbeciles (37—mostly habitual criminals) and ordinary defectives—these latter proved useless and often dangerous (loading their rifles without orders) to their comrades. Some of these cases exhibited confusion, acute excitement or depression from which they recovered.

Confusional Insanity—134 cases (16 per cent.). Twenty-seven exhibited acute symptoms. Many were irritable, had tremors and hysterical symptoms. The majority of these cases occurred on active service, from mental or physical strain, and their appearance suggested a neurotic temperament.

Dementia Precox—118 cases (14 per cent.). Of these 93 were simple, 11 catatonic, and 14 paranoid. (Many of the manic-depressive cases may ultimately prove to be really cases of this affection.) Some of these cases broke down before they had reached the firing line. It is impossible to say whether the patients in this group would have carried on in civil life without a breakdown.

Paranoia—44 cases (5 per cent.). Here the delusions had, in many cases, been present before enlistment and the campaign accentuated them.

General Paralysis—22 cases (2 per cent.). The ordinary symptoms were present. In a few of these cases the progress of the disease was not materially affected by the campaign.

Other Organic Brain Conditions—These were single cases of tuberculous meningitis, hemiplegia, destruction of brain tissue from a kick from a mule, cerebral abscess secondary to a gunshot wound, and syphilitic meningitis.

Few cases of head injury exhibited mental symptoms.

Epilepsy—7 cases. All except one had epilepsy prior to enlisting.

Secondary Dementia—7 cases. All transfers.

Not Insane—4 cases. One, a malingerer with aphonia, was anesthetized three times with ether and wakened when shouting, but resumed silence on realizing that he was speaking. He admitted recovery prior to the fourth anesthetization.

Mental Instability—A useful term to apply to recovered cases who, on account of previous attacks, should return to civil life.

500 expeditionary cases were discharged. Of these 155 returned to duty, 139 were sent to asylums, 40 recovered, and 111 were removed, "relieved," by their friends. Forty-two were removed to other hospitals for treatment of their bodily condition; 11 died, and 2 escaped.

"STRESS OF CAMPAIGN."

In an interesting article, under this title, giving the reactions of the different forms of mental disease to war strain and shock, Norman[11] concludes that the war has apparently produced no new nervous or mental disorders. It has increased the number of such cases, and has thus caused some of them to be brought to the attention of many observers who would not, in the ordinary course of events, have taken cognizance of them. The difference is thus more in the perspective from which they are regarded than in the conditions themselves. Neurasthenia and "shell shock" have provided ample scope for study and for the formulation of more or less plausible theories as to their causation. Both terms have been used loosely and in a vague way. Further investigations of the function of the ductless glands may throw light upon the part which they play in the matter. In the meantime it is interesting to note—as Crile has pointed out—the extremely suggestive nervous condition of patients suffering from Graves' disease, and the general influence of disordered function in the thyroid gland. Much ground has to be covered, however, before satisfactory conclusions can be reached. It is not yet settled—if we may judge by the conflict of opinion—what is the best method of proceeding to investigate certain of these problems. That being so, we may look for still more darkening of counsel; and one of the most certain results to be anticipated is an accession to our terminology, if not a corresponding increase of our knowledge.

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THE BOSTON
Medical and Surgical Journal

Established in 1812

An independently owned Journal of Medicine and Surgery published weekly under the direction of the Editors and an Advisory Committee, by the BOSTON MEDICAL AND SURGICAL JOURNAL SOCIETY, INC.

THURSDAY, MAY 9, 1918

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid for the United States. $6.56 per year for all foreign countries belonging to the Postal Union.*

An editor will be in the editorial office daily, except Sunday, from twelve to one p.m.

Papers for publication, and all other communications for the Editorial Department, should be addressed to the Editor, 126 Massachusetts Ave., Boston. Notices and other material for the editorial pages must be received not later than noon on the Saturday preceding the date of publication. Orders for reprints must be returned in writing to the printer with the galley proof of papers. The Journal will furnish one hundred reprints free to the author, upon his written request.

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ERNEST GREGORY, *Manager*,
126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

LETTERS FROM TWO PATRIOTIC BOSTON PHYSICIANS.

THE following letters from two patriotic Boston physicians, which have recently appeared in the daily press, deserve republication in full at this juncture, as evidence of the strong sentiment of the medical profession in this international crisis, and the duty of each of its members to consider whether he is fulfilling the whole of his obligations of service to his country.

A DOCTOR'S CALL TO THE COLORS.

The medical profession of the country has responded nobly to the call for men to care for our soldiers and sailors at home and abroad—but more are urgently needed and at once. The Surgeons-General of the Army and Navy ask for more men, 7000 at least—are they to ask in vain?

Already there are on duty or in training 16,000 members of the Medical Reserve Corps, to whom the care of 97% of our men will fall, and orders are about to be issued calling every man who has a commission in the corps to active duty with the alternative of discharge. That means that there is no longer a "reserve"; that every man of them is needed and many more, too.

Massachusetts has furnished the Army with 843 men, 14.2% of its medical population; but where does she stand in the percentage column of States? No. 31—nearly two-thirds the way to the foot of the line. One feels humiliated to see State after State, not one more able to help than she, with higher percentages, reaching even as high as 24%.

Are our men waiting for something to happen—it is happening now. Do they need something to stir their sluggish blood—let them think of Dr. "Pete" Howe, whom we all loved, who entered the British service because his poor eyesight made it difficult to get into our Army, and who was killed doing his duty and lies in an English military cemetery with the American eagle on the cross at his head. Are they afraid of their lives, their health, their money, their ease? Or are they only half awake? The need of the boys at the front and in the camps is more urgent, more vital than of those who are left behind, and the public must understand that there will be a scarcity of doctors as of wheat or coal. Because one cannot get his or her favorite doctor let it not be thought that the community is totally depleted and everybody is going to die. We want the best men for the service. We must have them.

Some men must stay behind, for a certain number are necessary to the community, as practitioners and teachers, while many are physically unfit to go.

The time has come when the man who stays at home for good cause—in other words, who is exempt—should have a designating badge like that of the Volunteer Medical Corps, which is composed of those who would be eligible for the Medical Reserve Corps were it not for age, physical disability, institutional or communal needs. This might shame some men into enlisting who could not be reached in any other way.

The time has also come when every man should search his conscience, should truthfully decide whether he is a "slacker" or not, whether he could not go were he willing to give up his ease, luxuries and creature comforts.

Heaven forbid that a medical draft should be necessary. Dr. Mosher is right when he says that "the only test of Americanism today is service. By this test all men are being silently judged."

"Choose ye this day whom ye will serve."

SAMUEL J. MIXTER, *Major M.R.C.*

THE NEW TEST.

A year this month our country has been at war. Each day is greeted with a new casualty list. The list is short, but with our men holding their bit of the line it must grow. To find one name there means for some family the full measure of sorrow and empty years to come. For twelve months the call for loyalty and service has been ringing through the land. It has fallen not only on quick ears, but on many that cannot or will not hear. It is not enough that your father or his father served his country. With their blood in your veins, you should be rendering service now. Read the army lists. They are filled with foreign names. Their owners often put to shame for quick and full response those who claim long lineage on our soil. After twelve months of war each one of us must ask himself whether or not he is doing his full duty. The question cannot be evaded, because the call for service still rings clear. Have you given full service? Or have you made the most of the excuses always put forth in times like these by those content to let their brothers serve? Have you salved your conscience with part-time service, when full service would mean sacrifice for you or for your family? Remember that our Allies no longer speak of service as a sacrifice, but as a privilege. Are you still a spectator? Are you to take any part except in the cheering—if there is any—when the victory is won? Whatever your ancestry, whatever your name, the only test of Americanism today is service. By this test all men are being silently judged. Its findings will be passed down in households to the end of this generation. Old friends and new must face it. A re-rating of the nation is in progress. Already in many instances the findings of the new test have caused astonishment and sadness. The test is forced upon us. We cannot stop its relentless application—we cannot reverse its judgments. It is born of the agony of the world. From now on its findings will unite or divide every group in which men assemble for their daily occupations, and every family throughout the land.

HARRIS P. MOSHER, *Major M.R.C.*

THE CHILDREN'S YEAR.

ONE of the most remarkable developments of the war, a victory not heralded on front pages, yet which in time to come will be noted by all students of human welfare, is the saving of infant life in England during the second year of the war. The report of the chief medical officer of the Local Government Board, Sir Arthur Newsholme, published in 1917, shows for one sanitary district after another throughout England and Wales the number of babies who died before the war, those who died the first year of the war, and the deaths for the second year of the war, 1916.

It is startling to turn over the pages of this report and to see that the general social confusion of the first year of the war resulted in a large increase in the number of babies who died. But in the second year of the war, when the Local Government Board was enabled to grant financial aid to the various sanitary districts and to secure coöperation in its policy of health visitors for every mother and baby, of health centers for consultation, of hospital care for sick mothers and babies, the rate went down not only far below the rate for the year before, but far below the rate previous to the war.

This record of life-saving in the midst of the strain of a war, by means so simple and so at command, is, we believe, entirely without parallel.

In the light of England's experience, and with the conviction that all will realize that the guarding of child life behind the lines is a patriotic duty, the Children's Bureau asks us to call the coming year Children's Year, and it has given into the hands of the Women's Committee of the Council of National Defense for execution a program for child welfare, advocating those methods of work which have already proved efficient in saving children's lives in our own and other warring countries.

To inaugurate the Children's Year, a nation-wide weighing and measuring of babies and children of pre-school age will be made. This will show each community what its children need if the rising generation is to be free from those physical defects which the draft has revealed.

The Federal Children's Bureau, in coöperation with the Council of National Defense, has set apart a Children's Year throughout the Nation, from April 6, 1918 to April 6, 1919. The first drive in the campaign is the weighing and measuring of all children under five. Boston aims for a 100% registration, and counts upon her professional social workers to help make this possible.

The relation of weight and height to health has already been proved. Unless the deviations from the average of the healthy child are known, parents, physicians and social workers will be unable fully to utilize the facilities pro-

vided by the community to secure healthy and normal child-life.

There will be about 100 weighing stations throughout the city, with five volunteers in charge of each station. This establishment of the stations by districts has been worked out through the coöperation of the Boston Equal Suffrage Association for Good Government, whose ward organization is admirably adapted to a city-wide campaign.

The Baby Hygiene and District Nursing Association have offered their equipment and members of their staff for certain departments of the work.

AN IMPERATIVE APPEAL FOR MEDICAL OFFICERS.

AN urgent and imperative appeal has just been issued by the Surgeon-General of the United States Army, for doctors for the Medical Reserve Corps.

There are today 15,174 officers of the Medical Reserve Corps on active duty, and the Medical Department has reached the limit of medical officers at the present time available for assignment. With these facts before the medical profession of this country, we believe that every doctor who is physically qualified for service, between the ages of 21 and 55 years, will come forward now and apply for a commission in the Medical Reserve Corps.

The Surgeon-General says: "So far the United States has been involved only in the preparatory phase of this war. We are now about to enter upon the active or fighting phase, which will make enormous demands upon the resources of the country." The conservation of these resources, especially that of man power, depends entirely upon an adequate medical service.

Drafts of men will continually follow drafts, each of which will require its proportionate number of medical officers, and there are at this time on the available list of the Medical Reserve Corps, an insufficient number to meet the demands of these drafts.

The real necessity for the complete mobilization of the entire profession is imperative. It is not a question of a few hundred men volunteering for service, but of the mobilization of the profession for the conservation of the resources of this country. Let every doctor who reads this editorial and appeal from the Surgeon-General, which appeal is based upon dire necessity, act promptly and present his application for a commission in the Medical Reserve Corps at the nearest Medical Examining Board. If you are not informed of the location of your Board, the Editor of this JOURNAL will advise you.

STAND BEHIND THE BOYS.

How many doctors have applied this now very expressive phrase to themselves? There is nothing that puts more heart in and gives so much confidence to a soldier in the thick of a fight as the thought that if he does suffer a casualty, he will receive proper medical care and attention. What are you doing in this respect?

There are many boys, sons of your patients or friends, who have been or will be called into the service, and what a source of consolation it would be to the parents to know that possibly their own doctor might be the one to look after their boy, and they will welcome your acceptance of a commission in the Medical Reserve Corps and compliment you for so doing.

The opportunity for you to do the most good in a professional way to the greatest number of people, is to offer your service to your country through the Medical Reserve Corps. Do not think longer about it, but apply at once to your nearest Medical Examining Board, and if you are not informed of its locality, the Editor of this JOURNAL will supply the necessary information.

Stand by our boys, your boys, their boys. Remember the gallant French in '76; the British who stood by Dewey in 1898; the Garibaldis who were always for Liberty.

The rapid expansion of the Army calls for a largely expanded Medical Reserve Corps. The Surgeon-General has issued a most earnest appeal for doctors. The Department has reached the limit of medical officers available for assignment.

MASSACHUSETTS SCHOOL OF PUBLIC HEALTH.

The arrangements for the Four-Day School of Public Health to be given in Boston, May 28-31, under the direction of the Public Health Committee of the Massachusetts Medical Association, are rapidly nearing completion. It is expected that complete printed programs will be ready within the next few days.

Special efforts are being made to secure the attendance of all physicians interested in public health work, as well as public health officials from all parts of the State. The sessions are to be held in Huntington Hall and the large lecture room at the Massachusetts Institute of Technology, so that adequate provision is made for all who may attend. All persons with public health interests will be cordially welcomed. As an aid in securing the presence of public health officials, letters signed by the Governor have been sent to the chief executive of each town and city of the Commonwealth, asking that a representative be appointed to attend the sessions.

ENROLLMENT IN THE NAVAL RESERVE FORCE.

Attention at this time should be briefly called to the subject of release statements from local exemption boards. Many persons who intended to join the Naval Reserve force have waited too long, and are now unable to get release from their local boards. In not a few instances, however, these boards would be willing to let a man enroll, but will not give the statement required by the Navy Department, that he is in a class and order number so low that he is not within any current quota of the Board. Applicants for the Naval Reserve force must be American citizens, but friendly aliens with first papers will be taken in the commissary and messman branches.

MEDICAL NOTES.

Little Children Deprived of Milk.—That babies and little children are directly affected by the decreased sales of milk reported by dealers in American cities is illustrated by findings for Baltimore, made public today by the Children's Bureau of the U. S. Department of Labor.

Of 756 Baltimore children between 2 and 7 years of age, only 29% are now having fresh milk to drink, as against 60% a year ago. And only 20, or less than 3% of the children studied, are having as much as three cups a day. With the babies under 2, the Children's Bureau says, the situation is a little less serious. Apparently, their needs are more generally understood than the needs of the child over 2.

The number of families in this group who are buying no fresh milk at all has risen from 37 a year ago to 107, or 29% of those from whom information was secured, and these 107 families include one-fourth of all the children under 7. At the same time, the total daily purchase of canned milk by the families studied has increased from 25.5 cans to 84 cans.

Most serious, according to the Children's Bureau, is the general substitution in the children's diet of tea and coffee. Of the 575 children who are not drinking milk, 64% have definitely substituted tea and coffee, and 24% are "sharing the family diet," which may or may not include tea or coffee, or milk in other foods.

While the group of families studied is small, the Bureau offers the findings as fairly representative, since the information was secured and transmitted to the Children's Bureau by school nurses of the Baltimore Department of Health and by nurses of the Instructive Visiting Nurse Association and the Babies' Milk Fund of Baltimore, from all families they visited during a certain short period, provided: (1) there were at least two children under 7 years of age; (2) the family had been in Baltimore at least a year; (3) no tubercular patient was living in the family.

Various incomes are reported, but the changes in the amount of milk purchased are not unlike in the different earnings groups. Some mothers seem to realize that milk must be provided for their children, at whatever sacrifice; others, who can better afford to buy milk, do not understand its importance, and let their children go without it. The foreign-born mothers, although their incomes are slightly lower than the incomes of the native white mothers, have, more generally than any-

other group, continued to buy milk. Almost half of the foreign-born mothers have either continued the amount purchased last year or increased it, and only 1 in 10 of the foreign mothers (as against 1 in 3 of the other mothers) are now buying no milk at all.

The Children's Bureau states: "Taking a pint and a half of fresh milk as the desirable daily allowance for the average child, these 756 children were having last year on an average, only 40% of what they should have had; this year their daily average has dwindled to 14.4% of this allowance.

"The work of Children's Year should emphasize in every community the importance of fresh milk in the diet of young children. Without proper nourishment, children cannot keep well and free from physical defects, and a campaign of education on the feeding of children is an essential part of the saving of 100,000 lives during the second year of the war."

THE SANITARY DANGERS FROM DOMESTIC PETS.—A report on an epidemic of virulent smallpox in one of the Southwestern States, submitted to the Surgeon-General of the Public Health Service by one of the officers of that corps, sets forth with renewed emphasis the rôle that domestic pets may play in the transmission of disease, especially among children. The instance cited was that of a fatal case of smallpox in an infant in arms. The nearest case of the disease was in a house a block or so distant, and although the two families had no social relations, this apparently did not deter a dog belonging to the infected family from dividing his attention impartially between the two homes, eating at one place and sleeping at the other.

In no other way could the source of the infection of the baby be explained than that the dog fondled by the children of the smallpox family carried the virus of the disease to the neighbor's baby. Similar instances have been noted before in connection with smallpox transmission, and cats and dogs both have been incriminated as carriers of plague-infected fleas—cases of bubonic plague so contracted having been observed by Public Health Service officers working in recent plague epidemics. The same household pets also have been charged in certain instances with the responsibility of carrying the infection of diphtheria, scarlet fever, and other communicable diseases of children, as well as various intestinal parasites.

A disease that annually causes more than 110 deaths in this country is rabies, and the rôle of domestic animals in spreading this disease is definitely proven, speculation or circumstantial evidence being discarded.

Altogether, therefore, it is perfectly evident that the citizen who keeps domestic pets maintains at the same time a very potential source of danger—a sanitary menace to his own household and to that of his neighbor. While this aspect of the subject applies year in and year out, it may well behoove the city dweller in these times of urgent demand for food conservation to take serious counsel with himself as to whether he is justified in continuing to keep his dog or his cat, both of which are casual sources of mental annoyance to neighbors, as well as agents for graver potentialities.

ANNUAL REPORT OF THE NATIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS.—The third annual report of the National Committee for the Prevention of Blindness has been issued for 1917. During the past year the function of the committee as a bureau of information has grown enormously, and letters have been received from all over the world, as well as from all quarters of the United States, requesting advice and assistance. Several publications have been made during the year, those of most importance being "Eye Hazards in Industrial Occupations," "Saving Sight a Civic Duty" and "Bright Eyes—How to Keep Them Shining." The annual summary of statistics, gathered from schools for the blind, which is taken as some indication of how the educational propaganda of a dozen years is affecting the situation as regards children's blindness, shows a slight reduction over last year's report, and the encouraging fact that eleven years of work have seen a diminution in the percentage of children entering the schools for the blind because of eyes destroyed by inflammation of the new-born from 28.19% in 1906-7 to 18.4% in 1916-17. Mr. Gordon L. Berry, field secretary of the Committee, was called upon to serve as lecturer to the soldiers in the army camps by authority of the Surgeon-General's Department, and entered upon the work; but feeling that he could be of more service in France, he volunteered for work with the Y. M. C. A.

abroad, and was immediately accepted. During the year various lectures, exhibits, and slides prepared by the committee have helped to disseminate knowledge regarding the prevention of blindness.

WAR NOTES.

Comparative Birth and Death Rates in War.—Statistics published in the daily press show that during a recent week the births and deaths in the six largest German cities were as follows:

Berlin, 379 births and 522 deaths; Hamburg, 181 births and 404 deaths; Leipsic, 95 births and 178 deaths; Munich, 155 births and 251 deaths; Cologne, 182 births and 254 deaths; Frankfort, 70 births and 106 deaths; making a total of 1062 births and 1705 deaths.

During the same week the four largest Austro-Hungarian cities showed the following figures:

Vienna, 298 births and 904 deaths; Budapest, 249 births and 399 deaths; Prague, 6 births and 213 deaths; Trieste, 13 births and 82 deaths; making a total of 622 births and 1598 deaths.

During the last week of March the total births in London were 1240 and deaths 1358. Adding the eleven cities together, the deaths exceeded the births by 1737, which, continued for a year, would amount to an actual decrease of 90,324 in the population.

BOSTON AND MASSACHUSETTS.

Week's Death Rate in Boston.—During the week ending April 27, 1918, the number of deaths reported was 273, against 258 last year, with a rate of 18.15, against 17.42 last year. There were 45 deaths under one year of age, against 37 last year.

The number of cases of principal reportable diseases were: diphtheria, 71; scarlet fever, 24; measles, 383; whooping cough, 66; typhoid fever, 3; tuberculosis, 50.

Included in the above were the following cases of non-residents: diphtheria, 14; scarlet fever, 5; measles, 1; whooping cough, 3; typhoid fever, 2; tuberculosis, 1.

Total deaths from these diseases were: diphtheria, 3; measles, 7; whooping cough, 4; tuberculosis, 32.

Included in the above were the following non-residents: diphtheria, 1; whooping cough, 1; tuberculosis, 2.

Report of the Department of Medico-Social Work of the Boston City Hospital.—During the past year the Department of Medico-Social Work of the Boston City Hospital has been incorporated and recognized as one of the Hospital activities. The fact that the public is realizing the aid which the medico-social worker can render in spreading knowledge of preventive medicine, and so helping to suppress contagious disease, is shown by the fact that in June, 1917, the City made an appropriation to cover the salaries of five workers (approximately one-third of the total expense). The Hospital Trustees seem to believe that the work is indispensable. A year ago there were seven workers; there are now twelve, including the director and two clerical assistants. A large number of cases have been followed up during the past year, and possible scope of the work with chronic patients has been investigated. There is much need of work with sick children, and their problem in connection with medical and surgical house services has been studied. Work has also been done in connection with house- and out-patients from the Gynecological and Maternity Services. Too much emphasis cannot be laid on the importance of this most necessary work, and it is to be hoped that it will constantly increase in scope.

The Massachusetts Medical Society.

NOTES FROM THE DISTRICT SOCIETIES.

District Correspondents.

Berkshire, A. P. Merrill, M.D., Pittsfield.
Bristol North, Arthur R. Crandell, M.D., Taunton.
Bristol South, Edwin D. Gardner, M.D., New Bedford.
Essex North, T. N. Stone, M.D., Haverhill.
Essex South, H. P. Bennett, M.D., Lynn.
Hampden, Laurence D. Chapin, M.D., Springfield.
Hampshire, E. E. Thomas, M.D., Northampton.
Middlesex South, William C. Hanson, M.D., Belmont.
Norfolk South, Daniel B. Reardon, M.D., Quincy.
Plymouth, Alfred C. Smith, M.D., Brockton.

Essex South District Medical Society.—Dr. Stephen Rushmore of Boston was the guest of the Lynn Medical Fraternity March 30 and read a paper on "Prenatal Care."

Dr. George H. Gray of Lynn has recently been commissioned as major in the Medical Reserve Corps and has been ordered to report for duty at Camp Beauregard, Louisiana. Dr. J. Armand Bedard of Lynn recently received an appointment as one of a corps of physicians selected for tuberculosis work in France by the Rockefeller Institute. Word was recently received announcing his safe arrival in France.

Dr. Martin Peck of Lynn and Marblehead has received a commission as first lieutenant in the Medical Reserve Corps.

Dr. M. R. Donovan, recently appointed health commissioner of Lynn, took office April 1.

H. P. BENNETT.

HAMPDEN DISTRICT MEDICAL SOCIETY.—Following is a corrected list of members who have entered the Army and Navy up to date of going to press.

W. J. Bostick, J. M. Birnie, H. F. Buddington, H. F. Byrnes, E. H. Burke, O. R. Blair, P. M. Cort, J. M. Claffy, E. B. Corcoran, W. A. R. Chapin, E. L. Davis, E. C. Dubois, J. H. C. Gallagher, A. H. Galvin, E. A. Gates, G. D. Henderson, D. E. Harriman, M. B. Hodskins, P. Kilroy, C. F. Lynch, P. M. Moriarty, V. S. Merritt, J. M. Maloney, L. E. Mannix, H. C. Martin, J. H. Quinn, R. A. Rochford, S. D. Rumrill, J. F. Streeter, M. J. Stoddard, G. L. Schadt, J. M. Tracy, W. R. Weiser, H. A. Lanpher, B. Rabinowitz, E. P. Halton, H. Zimmerman, C. A. Whitcomb, W. P. Ryan, A. H. Riordan, R. A. Green, W. J. Dillon, J. J. Cosgrove, H. Caro, M. D. Chisholm, R. E. Cleary, W. F. Greaney.

The annual meeting was held at Hotel Worthy, Springfield, on Tuesday, April 23, at 4 p.m. The following officers were elected for the ensuing year: president, Arthur L. Damon, of North Wilbraham; vice-president, George L. Gabler of Holyoke; secretary and treasurer, Hervey L. Smith of Springfield.

Papers were read as follows: "The Clinical Significance of Chemical Blood Examinations," by Dr. John E. Overlander; "The Prostatic: How Shall He be Managed?," by Dr. F. B. Sweet.

The censors will meet for examination of candidates for admission to the Society at the Hotel Worthy, Springfield, on Thursday, May 2, 1918, at 4 p.m.

L. D. CHAPIN, *District Correspondent.*

PLYMOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting of the Plymouth District Medical Society was held in Brockton on April 18, 1918. Forty-five members, representing all parts of the county, were present, with Dr. Nathaniel K. Noyes of Duxbury, presiding.

Dr. Gilman Osgood of Rockland outlined plans for the coming year. This will be a war year, he said, and all papers will bear on medical and surgical work in the war.

Dr. Joseph Frame of Rockland was named to read a paper at each meeting, and he will keep in touch with members in the service abroad. The other officers chosen were: vice-president, Dr. Frame, Rockland; secretary and treasurer, Dr. Alfred C. Smith, Brockton; commissioner of trials, Dr. Francis J. Hanley, Whitman; censors, Dr. Fred J. Ripley, Brockton, supervisor; Dr. James H. Drohan, Brockton; Dr. Joseph Frame, Dr. Walter W. Fullerton, Brockton, and Dr. Richard B. Rand, North Abington. The councillors elected were: Dr. A. Elliott Paine, Brockton, nominating councillor; Dr. Frank G. Wheatley, North Abington, alternate, and Dr. Charles E. Lovell and Dr. Alfred A. MacKeen of Whitman, and Dr. Fred J. Ripley, Brockton. The orator for 1919 will be Dr. Charles Hammond, Hanover.

The election of officers was followed by the reading of the manuscript of Dr. Frank E. Wheatley, the orator for this meeting. In his absence, because of service at Fort Oglethorpe, Ga., his paper on "Roentgenology in the American Army," was read by his father, Dr. F. G. Wheatley.

The other speaker, Dr. John T. Bottomley, of the Carney Hospital, spoke on "Cancer." Discussion on this topic was led by Dr. S. W. Goddard and others, from the surgical and medical standpoints.

The mid-summer meeting will be arranged by the officers.

A. C. SMITH.

Miscellany.

OWEN AND DYER BILL.

THE following letter from Dr. Franklin Martin through Major John D. McLean, M.R.C., Secretary of the Committee on States Activities of the General Medical Board of the Advisory Commission of the Council of National Defense,

has been received by the Secretary of the Massachusetts State Committee, with reference to the Owen and Dyer Bill now pending before the National Legislature:

1. In order to acquaint your members with the purpose of the bill introduced February 5 by the Hon. Robert L. Owen, Senator from Oklahoma, and Hon. Leonidas C. Dyer, Representative from Missouri, an identical measure (S. 3748, H. R. 9563), we enclose copy of a speech made by Senator Owen, July 20, 1917, when introducing the original bill, and for which the present measure is a substitute, having the same substance and purpose.

2. While the medical service is far better equipped than ever, and while its responsibilities are greater, it has no increase in authority. Disease and death have followed in armies with inadequate medical service, and in which coördination of medical and line officers has been lacking. Line officers are schooled to attach importance only to recommendations from men of equal or superior rank.

3. The medical service is looked to by the nation at large for great aid in the creation of an effective fighting force, and it is looked to particularly by the parents and relatives of our young citizen-soldiers to safeguard their health; but such safeguards cannot be assured by the medical branch unless the medical officer is clothed with rank sufficient to influence adoption of the recommendations which he knows are for the good of the army and of the nation.

4. Not for increased pay, nor for the purpose of stimulating patriotism, nor to satisfy pride—but in order that the medical men may render their best service, is this legislation being sought. Men of the highest standing in the profession, at great personal sacrifice, are in active military service with the rank of major. They are giving their time and services uncomplainingly, but they know that their branch of the great work is handicapped because few of its representatives are given high enough rank to insure the attention vitally necessary. A far smaller proportion of medical officers than of line officers are eligible to advanced rank.

5. A way to insure attention for the bill would be to have medical societies pass resolutions, sending copies to the President, the Secretary of War, the Vice-President, Chairman George E. Chamberlain of the Senate Committee on Military Affairs, Chairman S. Hubert Dent, Jr., of the House Committee on Military Affairs —and also to have letters written by *laymen* to Senators and Representatives.

The following extracts from Senator Owen's speech above referred to may be taken as evidence of the arguments advanced by the proponents of the bill:

"We have no desire to recall the sad story of typhoid fever epidemics among our soldiers in 1898 unless we may profit by doing so. It may be well for us to remember that out of a total of 200,000 enlisted men in that war, more than 20,000 developed this disease. But, says one, vaccination now prevents altogether or greatly lessens the chances of developing typhoid fever, and such an epidemic can never again occur. This may be true, and is undoubtedly partly true, at least, of typhoid fever; but there are other diseases for which, unfortunately, we have no protective vaccination. Some of these diseases are diarrhea, dysentery—both bacillary and amebic—scarlet fever, measles, various forms of meningitis, poliomyelitis, pneumonia, tuberculosis, etc. All infections have not yet been conquered. Among the causes of the fearful diseases of 1898—and the causes were many—was the lack of authority on the part of the medical officer. There is abundant evidence of this in various Government documents.

"On July 17, 1898, the chief medical officer at Chickamauga addressed a letter to the Adjutant General, containing recommendations concerning the improvements of sanitary conditions. In brief, the letter contained the following recommendations:

"1. That the Signal Corps, which had occupied the same site for several months and which was crowded, should be moved.

"2. That selected places should be designated as dumping grounds and all the waste should be collected and deposited on these places instead of being scattered through the camp.

"3. That, so far as possible, all camp sites should be changed.

"4. That the hospital of the first division of the corps be moved from the unsanitary position they occupied to a more healthful location.

"5. That the village of Lytle, which was a sanitary menace to the troops, should be cleansed.

"6. That all condemned sources of water supply should be effectually closed.

"7. That only filtered or boiled water should be used by the soldiers.

"8. That all hucksters selling doubtful food or drink should be expelled from the camp.

"9. That there should be careful supervision of all food and drink sold in the canteens.

"These recommendations, made in July, were unheeded at the time.

"In his testimony, Gen. Brooke spoke of the letter containing the above recommendations as follows: 'I did not regard his letter in a very serious sense. I do not know how he came to write it. There was much complaint in that camp from men of his own profession as to his action. He caused me more trouble and annoyance than any one ever did.'

"Had the recommendations contained in this letter which annoyed the senior line officer been taken seriously in July the fearful harvest of

sickness and death in August might have been averted.

"Nineteen years have passed since our little war with Spain, and we have crossed the threshold of a great war with Germany, Austria, Buigaria and Turkey. This war begins with the medical officer possessed of no more authority than he had in 1898. Will his recommendations be as futile as they were then? The medical profession has always been responsive to its country's demands, whether in war, in pestilence, in flood, or in famine. Conscription has never been necessary to fill its quota. Medical officers will do their best and will present their recommendations to superior line officers, but they realize that these recommendations are likely to receive scant attention, and that the medical officer will be compelled to work under a heavy handicap. The Government stamp placed upon the medical officer indicates the opinion that the Government has of the value of his services, and that his recommendations will receive from line officers any different consideration from that accorded them in 1898 is not probable. At present the Army Medical Corps has no representation on the General Staff or in the War College.

"Will it be possible that camp sites, both small and great, will be selected as they were in 1898, without consultation with the Medical Corps? And are we justified in feeling that we may have some reminders of the experiences of 1898? According to the testimony of the Surgeon General, recently given before a medical committee, the relative number of trained medical officers is not as great now as it was at the beginning of the Spanish War. We had then seven per thousand. We have now about five per thousand.

"In 1904 the English war office was reorganized by a committee, the chairman of which was Lord Esher. In this reorganization no provision was made for a representative of the medical army corps on the general staff, or what corresponds to our War College. At the time the surgeon general complained of this action. In reply to this complaint Lord Esher's committee stated that while too much importance could not be attached to the sanitary service of the army in peace or in war, the committee could not accept the views of the surgeon general. Lord Esher's committee continued: 'The army council is not and can not be a representative body as regards the several arms and departments. The royal army medical corps exists to serve the army in a most important capacity, but the first object must be to create and maintain an army, and this is the function of the army council. To admit the principle of representation would destroy the character of the council.'

"This was the opinion of Lord Esher in 1904. Recently (*London Times*, Feb. 3, 1917) Lord Esher writes as follows: 'How much of the suffering undergone by our soldiers since the war began has been due to the shortsightedness of my committee, and notably of myself, will never be known. Certainly the control of the adjutant general's branch over the royal army medical corps was and is responsible not only for the early failure to grip the medical factors of the war, but they hampered conditions under which the surgeon general has worked. His triumphs and those of the royal army medical corps have been achieved in spite of obstacles that the subordination of science to ignorance and of elasticity to military discipline explains but can not justify.'

"The following is a list of the lieutenant generals and major generals in the British medical service as of October, 1916, taken from the British Army list of October, 1916:

1. Director-general of the British Medical Service, Sir Alfred Keogh.
2. Director-general of the British forces in France, Sir Alfred Sloggett, rank lieutenant-general.
3. Lieutenant-general and director of the British Medical Service in India, Surgeon-General O'Donnell, rank lieutenant-general.
4. Director-General Indian Medical Service, Sir Thomas Pardey Lukis, rank lieutenant-general.

ON THE KING'S STAFF.

5. Hon. William Flack Stevenson, surgeon-general.
6. Sir William Babtie, surgeon-general.
7. James Cleghorn, surgeon-general.
8. Hon. Thomas Grainger, surgeon-general.
9. Hon. Peter Stephenson Turnbull, surgeon-major-general.

SURGEON-GENERALS RANKING AS MAJOR-GENERALS.

10. Hayward Reader Whitehead.
11. James Gaussen MacNeece.
12. William Burney Bannerman.
13. Thomas Martin Corker.
14. Sir David Bruce.
15. Louis Edward Anderson.
16. Harold George Hathaway.
17. Walter George Augustus Bedford.
18. Robert William Steele Lyons.
19. Richard William Ford.
20. Tom Percy Woodhouse.
21. William Grant Macpherson.
22. Robert Porter.
23. Thomas Joseph O'Donnell.
24. Menus William O'Keefe.
25. Richard Henry Stewart Sawyer.
26. John Chislett Culling.
27. William George Birrell.
28. Francis John Jencken.
29. Francis Harper Trehern.
30. William Rice Edwards.

"Since the expansion of the British Army this list has increased, but data are not available. The above data were taken from the Library of Congress, Book G7, A2, Class U 11, pages 4, 19, 45, 46, and 1921.

"In the report of the Crimean War, there was an enormous mortality due to defective service in sanitation and in the medical, surgical, and hospital services.

"The medical officer had no authority whatever, and the line officer did not realize the effect of disregarded medical advice, and the medical officer had no rank or dignity to emphasize his

advice. The same distressing consequences ensued from the same causes in the American Civil War, in the South African War, in the Spanish War, and recently in the Mesopotamian campaign. (See report below.)

"I submit a very brief extract on the recent British disaster in Mesopotamia, due to neglecting health of men:

"'Report of the commission appointed by act of Parliament to inquire into the operations of war in Mesopotamia, 1917.

"'[Extract from the Vincent-Bingley Commission's report on the Mesopotamia expedition (sec. 110, pp. 133-163), Library of Congress.]

"'There is abundant evidence that ..... lack of coördination have been important factors in the situation. Conferences were held at headquarters from time to time and plans were considered. It is stated, however, that Surg. Gen. ——— did not attend these conferences, except when the subjects discussed related directly to the medical administration. He was thus less in touch with the general situation than other heads of administrative services, and we think that this had an unfavorable influence on the working of his branch.

"'Section 111: The chief of the general staff, India, made special inquiries as to whether he was satisfied that the general staff was in sufficiently close touch with the medical services to insure that the latter knew when extra demands were likely to be made on them. Gen. ——— replied that he was "perfectly satisfied." We regret that we can not endorse this view, as there is evidence that on this and on other occasions the want of coördination and coöperation between the different branches of the staff, particularly between the inspector general of communications and the medical services, was the source of great inconvenience.

"'Section 58: We doubt whether the military authorities in Mesopotamia treated the medical services with much consideration in this matter, or whether they sufficiently realized the need for such steamers.

"'Paragraph 175: The medical personnel and subordinate staff have always been deficient in numbers. . . and it has only been the continued and untiring labors of a devoted but overworked staff that has again and again prevented an absolute breakdown.

"'Paragraph 176: We consider that the rigid economy which before the war was exercised and the spirit which this policy has engendered as to the comparative merits of economy and efficiency have contributed materially to the breakdown.

"'Paragraph 172: We are satisfied that the failure in the medical organizations had a material effect on the morale of the troops.

"'Part section 123: Surg. Gen. ——— did not represent with sufficient promptitude and force the needs of the services for which he is responsible, and in particular failed to urge the necessity ..... with the insistence which the situation demanded. Decision: We endorse the finding as regards Surg. Gen. ———, who, in our judgment, showed himself unfit for the high administrative office he held.

"'Memorandum obtained from British medical officer of high rank on my request for it.—R. S. O.'

"In the British Army at present there are three surgeons general with rank of lieutenant general; that is, the director general (Sir Alfred Keogh) at the war office, the director general of British forces in France (Sir Arthur Sloggett), and the director of British medical services in India (Surg. Gen. O'Donnell).

"Another officer, Sir Thomas Pardey Lukis, with rank of lieutenant general, is the director general of the Indian Medical Service.

"There is also a considerable number of surgeon generals with rank of major general, I think the actual number is 19, but I have not a recent army list in my possession. These officers all hold important posts, the following are some of the principal appointments:

"(*a*) Each army on the western front (we may assume an army to consist of about 200,000 troops) is furnished with a surgeon general as director of medical services of that army. This officer commands and is responsible for the entire medical service in the army to which he is appointed; he is on the headquarters staff of the army, and is the responsible advisor of the general commanding the army on all questions relating to the care and welfare of the troops, the prevention and dealing with epidemics, arrangements for the collection and evacuation of casualties in sick and wounded, the provision and establishment of field ambulances, casualty clearing stations and hospitals in the army area, the provision of ambulance trains, the establishment of convalescent camps, and very numerous other important matters.

"(*b*) A full colonel, army medical service, is with the headquarters staff of each corps and division, and his duties relate to all sanitary and medical matters in the formation to which he is appointed. He is also the medical advisor of the general commanding the corps or division.

"It would appear very advisable, in fact absolutely necessary, that the above officers hold the senior rank which they at present do.

"An enormous amount of responsibility rests in their hands and they are daily called upon to give opinion or advice on matters involving very weighty consideration and vital importance, not only of vast importance to the well-being and efficiency of the army, but also inceptions and schemes involving the expenditure of millions of pounds, *e. g.*, the defensive measures against gas attacks and the provision of gas masks and respirators have throughout been carried out by the medical service of the army this being only one—

and a comparatively minor—example of the many questions which have arisen.

"Let us suppose—for the purpose of argument—that these officers did not hold the senior rank which they do at present; would their opinion carry sufficient weight? For example, suppose that the director of medical services of an army held the rank only of colonel, every general commanding a division in that army, and also even every brigade commander, would be senior in rank to him. Could it reasonably be expected that the opinion of the director of medical services for the army would then carry the weight and authority which it does at present?

"In my humble opinion there can be only one answer, especially when it is borne in mind that these officers are specially selected for their high rank on account of their abilities and previous experience.

"(c) Other surgeon generals, with rank of major general, are serving in the following appointments:

"1. As director medical services on the lines of communication in France.

"2. As deputy director general at the war office.

"3. As director medical services in Egypt.

"4. As director medical services in Salonica.

"5. As director medical services in Mesopotamia.

"6. As director medical services in three commands in India.

"7. As director medical services in command in England, etc.

"Similar arguments in favor of high rank hold good with regard to all these appointments.

"Lastly, and this is a point which is deserving of sympathetic consideration, surely it is advisable to provide a certain number of higher ranks in the medical service, as in other branches of the army.

"The provision of these higher ranks and appointments which would be filled absolutely by selection, would furnish a goal for laudable ambition and an incentive to strenuous scientific work throughout the whole of an officer's service, and can, in my opinion, be productive of nothing but the very best results.

"The present campaign has furnished innumerable instances of the vast importance of the Medical Service and of the high standing and authority which it holds with the rest of the army.

"The French Army also dignified the medical department by providing for officers of the rank of major general and lieutenant general. This is also true of the Italian Austrian, German, and Japanese Armies for the same reasons.

"On January 16, 1917, Secretary of War Hon. Newton D. Baker strenuously urged upon Congress, legislation to give the Army equalization of rank in the higher grades with that of the Navy, on the ground that otherwise the detrimental effect on the Army would be too clear to require more than a statement. He said:

"'I wish to strongly emphasize that without legislation giving the Army equalization of rank in the higher grades with that of the Navy, the branch of the Government of which I am in charge will be done an obvious injustice, the detrimental effect of which to the Army is too clear to require more than a statement. All the reasons which have been urged for the creation of these grades in the Navy, so as to efficiently handle the units properly composing a command to be under the direction of such officers of the Navy, are present in at least an equal degree in the Army. As Congress, after a full consideration of the subject, wisely decided on the advisability of giving the Navy these grades in order that it may be properly and efficiently officered, for similar reasons it should now provide similar grades for the Army.

"'The embarrassment which arises in every branch of the service when brought in contact with other officers of foreign service of superior grade, but not existing in our service, is identical.

"'But the constant embarrassment arising between the two services in the disparity of rank is too apparent to call for more than mention.

"'If in all those joint matters in which the Army and Navy are concerned the Navy, by reason of the position of the superior grade is entitled to outrank the Army, the Army must perforce regard itself and be looked upon as a subordinate branch, and this is too inequitable.'

"This argument of the Secretary of War applies with precisely the same force to the organization of the Medical Department, which should not be put in the attitude of being subordinate in the field for which it is responsible. It should have a commanding position of dignity and responsibility, and when the recommendation is overruled it should be overruled by an officer of equal rank in the line of military purposes only, and then that officer should be personally responsible for the consequences, and if he errs should be subjected to immediate court-martial."

It is obvious that the increase in the personnel and rank of the medical corps, proposed by the Owen and Dyer Bill, meets the earnest approval of the heads of the various Federal Medical Services, and of the Medical Section of the Council of National Defense. On March 15, Gen. Gorgas made a direct appeal to Congress to enact his proposed legislation. The bill in its present form authorizes the establishment of a ratio of medical officers to the number of men in the army, and provides for the automatic increase of the number of medical officers with the increasing number of men. The passage of the Owen and Dyer Bill is, therefore, cordially to be advocated individually and collectively by members of the medical profession throughout the country.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR MARCH, 1918.

GENERAL PREVALENCE.

There were 12,766 cases of communicable diseases reported during March, which is an increase of 2816 cases over the total for the previous month and 4335 cases more than the March, 1917, total of 8431 cases.

Actinomycosis.—One case of actinomycosis was reported from Attleboro. This case was confirmed by laboratory test.

Epidemic Cerebrospinal Meningitis.—Epidemic cerebrospinal meningitis was reported to a much greater extent than for the corresponding month last year. The cases occurred in the more thickly settled parts of the State, and they apparently had no connection with military movements. As a rule, they were isolated cases with no evident sources of infection.

Lobar Pneumonia.—There seems to be a large number of lobar pneumonia cases reported. Whether these exceed the average number of cases we are unable to determine, as we have had no material on which to base an endemic index.

Smallpox.—Ten cases of smallpox were reported during March. A case reported from Boston proved to have been infected in New Hampshire. A case in Milton was first diagnosed as chicken-pox, and later proved to be smallpox. The patient in this instance was a travelling man, and no definite contact could be learned. A very mild case occurred in Lowell, which was apparently direct contact from a previous case in the family. Vaccination had been tried unsuccessfully three times. A case imported from Maine occurred at the Tewksbury State Infirmary. This patient had visited friends while in an eruptive stage, but, so far as is known, no secondary cases occurred. Five cases in Marlboro followed a case in February. In Hardwick a case of smallpox occurred in a farm hand. The only possible point of infection was a visit to a city ten days previous, and as no smallpox is known to be present in that city, the source of infection is not at all certain in this case.

Suppurative Conjunctivitis. — Suppurative conjunctivitis, or "pink eye," was reported from Amherst, in the latter part of March. This is of interest only from the fact that the cases were discovered and reported by the school nurse, and not by physicians. Physicians seem to forget that suppurative conjunctivitis in adults is reportable.

Trichinosis.—Trichinosis was reported from Brockton. Two cases occurred in one family and one in another. They were apparently infected from the same lot of pork.

Venereal Diseases.—The reports on venereal diseases are commencing to come in more freely, and we hope physicians will recognize the importance of the complete reporting of these diseases.

Diseases on the Premises of Milk Handlers.—Five cases of communicable disease occurred on farms producing milk. Three cases of scarlet fever, one each from Weymouth, Westfield and Brockton; 1 case of diphtheria from Springfield; and 1 case of smallpox from Hardwick. Isolation was enforced in each instance, and, so far as is known, no secondary cases occurred.

OUTBREAKS AND EPIDEMICS.

Diphtheria.—Eighteen cases of diphtheria were reported from Wakefield for the month. Eight of the cases occurred among boys from 10 to 14 years of age, who were attending gymnasium classes at the Y. M. C. A. An interesting feature connected with these cases was that a group of sailors from the Rifle Range were at the Y. M. C. A. at the same time and occupied the same lockers as these boys. Four days later one of these sailors reported sick, and died the following day, the cause of death being given as diphtheria. It was reported that this man came to the Rifle Range from New York about six days before and was feeling sick. Four contacts with this case also came down with diphtheria. The remaining cases in Wakefield were scattered throughout the town.

MEMORIAL RESOLUTIONS FOR DR. JOHN ALEXANDER GORDON.

To the Norfolk South District Medical Society, Gentlemen:

The Committee on Resolutions on the death of our late Fellow, Dr. John Alexander Gordon, beg leave to submit the following report:

Dr. Gordon, after a lingering illness, died at his home on Huntly Road, Quincy, on the 24th day of January, 1918.

Dr. Gordon was born in New Perth, Prince Edward Island, seventy-five years ago. He

was a direct descendant of those hardy Scottish pioneers who, one hundred and fifty years since, settled this beautiful isle.

Dr. Gordon was one of a large family and had to rely upon his own resources to make his way in life. Fortunately endowed with that ability and energy which overcome obstacles, he succeeded in obtaining a common school education, and was graduated from The Prince Edward's College. In 1866 he entered Harvard Medical School, from which he received his degree in medicine in 1871. He was a Boston City Hospital medical interne in 1870-1871.

Soon after graduating in medicine, Dr. Gordon located in Quincy, where he very soon built a very successful practice, which he maintained for nearly half a century.

For many years he was a member of the American Medical Association, the Massachusetts Medical Society, and was one of the original members of the Norfolk South District Medical Society. He was also an active member of several fraternal organizations, and held many positions of trust and honor in the city. His time and influence he gave willingly to all movements for the betterment of the people, and his advice and counsel were frequently sought in important matters affecting the welfare of the community in which he lived.

He was an active member of the School Committee from 1884 to 1889, when the world famous "Quincy" educational system was adopted.

The Quincy City Hospital owes its inception and culmination to Dr. Gordon's personal and untiring efforts. To its maintenance he contributed liberally of his time, means, and skill; and may its continued success be a lasting monument to his memory!

Dr. Gordon was an honored member of this Society. Twice he was its president, and he held the offices of councilor and censor.

Until his failing health prevented, he was a constant attendant at the meetings, and always took an active part in the discussions. He was an enthusiast in his professional work and gave his voice and influence in favor of careful scientific progression. His remarks always commanded attention, and were listened to with marked interest and lasting benefit to his hearers.

We believe that we fully realize that in the death of our associate and friend, this Society has lost a member of superior attainments, whose genial presence and valued counsel will be sadly missed; and that the community in which he lived will long remember him as an example of an honorable, charitable and conscientious physician.

Respectfully submitted,

WILLIAM A. DRAKE, M.D.,
JOHN C. FRASER, M.D.,
NATHANIEL S. HUNTING, M.D.

NOTICE

MEN WANTED FOR HOSPITAL CORPS, U. S. NAVAL RESERVE FORCE.—There are several openings in the Hospital Corps of the United States Naval Reserve Force for qualified men between the ages of 18 and 28.

The opportunities are exceptionally good for men having a knowledge of pharmacy and medicine.

To enroll, applicants should call at the office of the District Medical Aide, Room 1210, Little Building, Boston, Mass. If an applicant is under 21 years of age, he should bring with him his birth certificate; if of the draft age, a statement from his local board to the effect that he is in a class and order number so low that he will not be needed to fill any current quota of his board.

SOCIETY NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—The sixty-eighth annual meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, May 15, 1918. Business meeting at 7.30 P.M.

The executive Committee, in keeping with the spirit of the time, feel that it is advisable to omit the annual dinner and usual form of entertainment this year, and have arranged instead a patriotic meeting with the idea of arousing more enthusiasm among the fellows for work in the service.

The program is an exceptional one, and it is earnestly requested that the readers be given a large audience.

The Army,
Major Robert W. Lovett, M.O.R.C., U.S.A.

The Navy,
Medical Director John M. Edgar, U.S.N., Medical Aid to Commandant First Naval District.

F. W. SLEEPER, *President*,
BRADFORD KENT, *Secretary*.

WORCESTER DISTRICT MEDICAL SOCIETY.—The annual meeting will be held Wednesday, May 8, 1918, in G.A.R. Hall, 55 Pearl Street, Worcester.

PROGRAM.

4.30 P.M. Annual Business Meeting, with election of officers for the ensuing year.

5.15 P.M. Annual Oration. Dr. Royal P. Watkins. Subject: "Old Surgery."

6.15 P.M. Dinner at State Mutual Restaurant. Joint function with Worcester Homeopathic Medical Society.

After Dinner. Music and Patriotic Addresses.

The latter will present our country's pressing need of her doctors in the military organization. Every physician who possibly can should attend this meeting wherein we shall strive to visualize the situation and learn for each the path of duty.

Both societies extend a cordial invitation to all registered physicians of this district to join us in the dinner and what follows.

Physicians desiring to enroll in the bowling tournament for the benefit of the War Chest Fund, should send their names to Dr. O. H. Everett, 53 Pearl Street, Worcester.

ERNEST L. HUNT, *Secretary*.